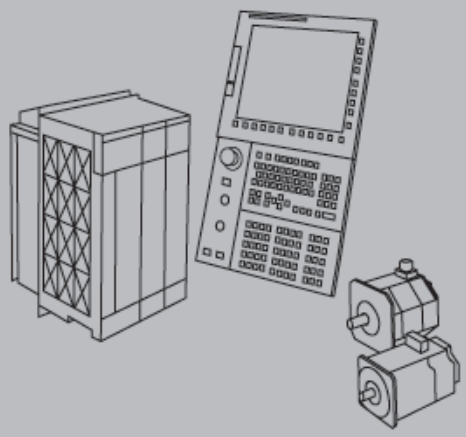
FANUC FA AMERICA

FASOPC Server User's Manual

D74C-0405-PB01 Edition 01



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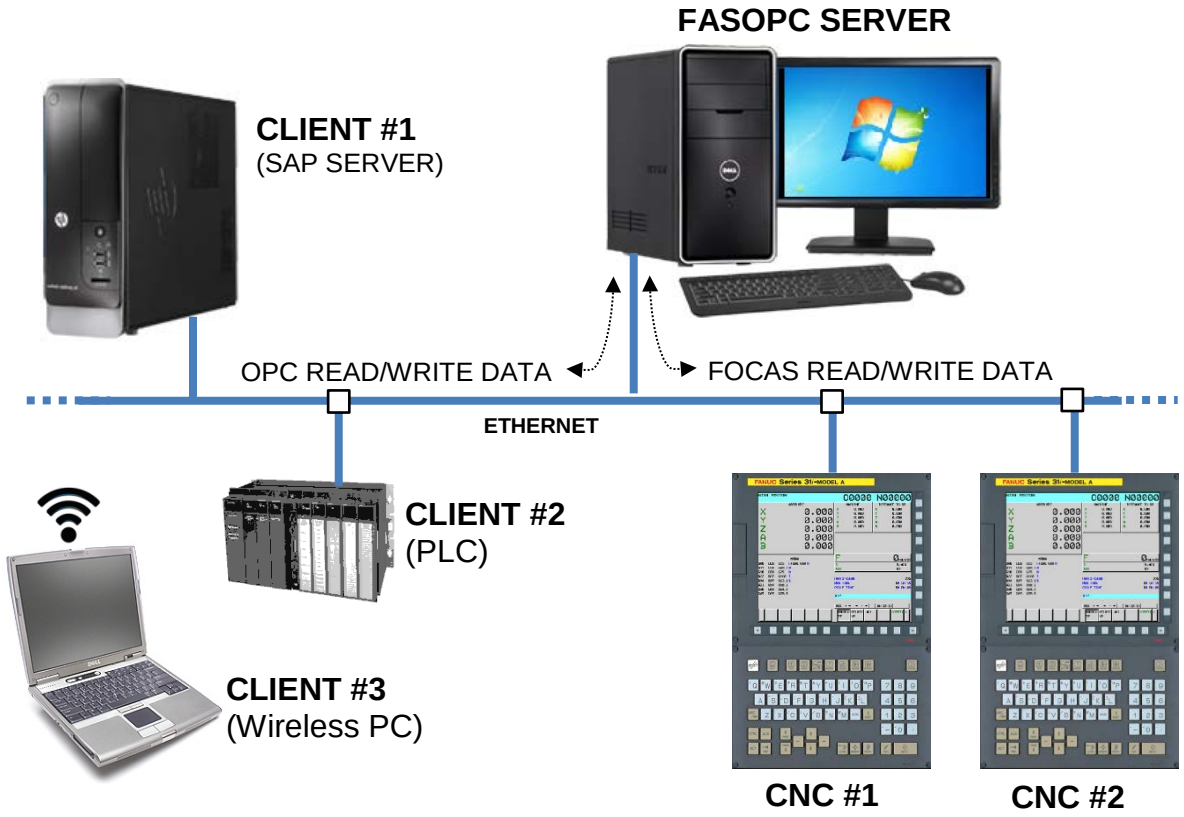
1 General

1 General

This chapter provides general information about the intention, capabilities, and pre-requisites of the FASOPC Server system.

1.1 Introduction to FASOPC Server

The FASOPC Server was developed by FANUC FA America to provide access to data within FANUC CNCs and translate it into the standard OPC format. This translated server data exposes an OPC interface to multiple OPC clients through the Ethernet connection. This software package runs on a Windows® based computer to provide access to FANUC CNC data on the factory floor. FASOPC software is compliant with OPC data access standards 3.0, 2.0, and 1.0a.



The FASOPC Configurator software is an intuitive user interface which provides a database driven collection of configuration wizards making it easy to setup the server and machine connections. Additionally to configure machine data, a point wizard guides you through the setup of data collection by specifying the machine, path, and point selections.

1.2 CNC Requirements

1.2.1 Models Supported

This product is available when using the following CNC series and models.

SERIES	SOFTWARE MINIMUM	CONNECTION
30*i*-Model B **31*i*-Model B** **31*i*-Model B5** **32*i*-Model B** **35*i*-Model B**	G301/G311/G321/G331 G401/G411 G421/G431 G501/G511 G601/G611	Ethernet Board, Embedded Ethernet, or HSSB
30*i*-Model A **31*i*-Model A** **31*i*-Model A5** **32*i*-Model A**	G001/G011/G021, G002/G012/G022, G003/G013/G023, G004/G014/G024 G101/G111, G103/G113, G104/G114 G121/G131, G123/G133, G124/G134 G201, G203, G204	Ethernet Board, Embedded Ethernet, or HSSB
0*i*-M Model D **0*i*-T Model D**	D4F1 D6F1	Embedded, Board, or HSSB
0*i*-M Model C **0*i*-T Model C**	D4B1 D6B1/D6D1	Ethernet Board
0*i*-M Model B **0*i*-T Model B**	D4A1 D6A1	Ethernet Board, or HSSB
0*i*-M Model A **0*i*-T Model A**	D401 D601	HSSB
16*i*-M Model B **16*i*-T Model B** **18*i*-M Model B** **18*i*-M Model B5** **18*i*-T Model B** **21*i*-M Model B** **21*i*-T Model B**	B0H1/B0HA/B0HK, B0K1, B0N1, B0M1 B1H1/B1HA/B1HK, B1D4/B1D6, B1K1, B1N1, B1M1 BDH1/BDHA/BDHK, BDH5/BDHE, BDK1/BDK5, BDN1/BDN5, BDM1/BDM5 BDHE BEH1 DDHA DEK1	Ethernet Board, Embedded Ethernet, or HSSB
16*i*-M Model A **16*i*-T Model A** **18*i*-M Model A** **18*i*-T Model A** **21*i*-M Model A** **21*i*-T Model A**	B0FA B1D5 BDF4 BEFB BH00 DEF4	Ethernet Board, or HSSB
16-M Model C **16-T Model C** **18-M Model C** **18-T Model C**	A0DA	HSSB
15*i*-M Model B **15*i*-T Model B**	F0A3 F6A2	HSSB
15*i*-M Model A **15*i*-T Model A**	F004 F005	Ethernet Board, or HSSB
15-M Model B **15-T Model B**	A0B1 A2D1	Ethernet Board, or HSSB

1.2.2 Required Options

The table below shows CNCs that require options to allow FASOPC server access to the CNC data. Either the HSSB or Ethernet option will fulfill the requirement.

SERIES	DESCRIPTION	OPTION
15*i* Model A	Ethernet Function FOCAS1 + Extended Drivers and Libraries	A02B-0207-J647 + J801
15*i* Model B	HSSB Extended Drivers and Libraries	A02B-0207-J801
16*i*/18*i*/21*i* Model A	Ethernet Function FOCAS1 + Extended Drivers and Libraries	A02B-0207-S707 + J800
	HSSB Extended Drivers and Libraries	A02B-0207-J800
PowerMate-*i*	Ethernet Function FOCAS1 + Extended Drivers and Libraries	A02B-0259-J862 + J847
	HSSB Extended Drivers and Libraries	A02B-0259-J847
0*i* Model B	Ethernet Function FOCAS1 + Extended Drivers and Libraries	A02B-0207-S707 + J800
	HSSB Extended Drivers and Libraries	A02B-0207-J800
0*i* Model A	HSSB Extended Drivers and Libraries	A02B-0207-J800
16/18 Model C	HSSB Extended Drivers and Libraries	A02B-0207-J800
15 Model B	HSSB Extended Drivers and Libraries	A02B-0207-J801
The controllers listed below are available with an embedded Ethernet port on the main board. **If the embedded Ethernet port is not installed**, one of the following options is required.		
21*i* Model B	Ethernet Function	A02B-0207-S707
	HSSB Extended Drivers and Libraries	A02B-0207-J800
32*i* Model A	Ethernet Function	A02B-0308-S707
	HSSB Extended Drivers and Libraries	A02B-0207-J900
0*i* Model C	Ethernet Function	A02B-0310-S707
0*i* Model D	HSSB Extended Drivers and Libraries	A02B-0207-J800

1.2.3 Additional Options

The 30*i*/31*i*/16*i*B/18*i*B controllers have an embedded Ethernet port on the CNC MAIN board. This port may be used by FASOPC software; however greater performance may be realized utilizing the Ethernet option board or HSSB option board fiber optic interface.

SERIES	DESCRIPTION	OPTION
30*i*/31*i*/32*i* Model A	Ethernet Function	A02B-0207-J647
30*i*/31*i*/32*i* Model B	HSSB Extended Drivers and Libraries	A02B-0207-J801
16*i*/18*i*/21*i* Model B	Ethernet Function	A02B-0207-S707
	HSSB Extended Drivers and Libraries	A02B-0207-J800

1.3 Supported Functions

This section details the functions provided by the FASOPC Server.

1.3.1 System Data Access

This product supports access to the following system data types.

TYPE	DESCRIPTION	READ/WRITE
CNC	Control System Information – model, type, and path count	R
CNC	Tool Offset – geometry, wear, tool life, tool management	RW
CNC	Work Offset – offset data, work shift, and extended work offsets	RW
CNC	Program Data – main program and active program numbers	R
CNC	Macro Variables – common and local variable (read/write)	RW
CNC	Alarm Numbers and Messages – active CNC alarms	R
SERVO	Position Data = absolute, relative, machine, and distance to go	R
SERVO	Axis Info – axis names and axis count	R
PMC	PMC Data – X,Y,G,F,R,D,A,C,T,K, (read/write)	RW
SERVER	Real-time server statistics	R

1.4 PC Requirements

This section details the minimum PC requirements for this software product.

1.4.1 Hardware

The following list details the appropriate hardware environment for the software.

ITEM	MINIMUM	RECOMMENDED
PROCESSOR	Single-core processor, 1.6Ghz	Quad-core processor, 2.8Ghz
RAM	1GB of working RAM memory	4GB of working RAM memory
HARD DISK	100Mb of free hard disk space	100Mb of free hard disk space
NETWORK	100base-T Ethernet adapter	100base-T Ethernet adapter
PCI SLOT	PCI slot is used if HSSB is used (fiber optic)	PCI slot is used if HSSB is used (fiber optic)
VIDEO	1024 x 768 SVGA video display resolution	1280 x 1024 XGA video display resolution

1.4.2 Software

This software will perform utilizing the following PC operating systems and support files.

ITEM	DESCRIPTION
OS	Windows 7 Professional 32bit or 64bit
OS	Windows XP Professional 32bit
OS	Windows 2008 Server R2 64bit
.NET	Microsoft ,NET Framework 4.0 Client
.NET	Microsoft .NET Framework 4.0 Extended

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2 System Setup

2 System Setup

This chapter details the FASOPC Server software installation, basic setup, and confirmation.

2.1 Installation

This section details the steps of software installation for the Windows 7 operating system. Installation with Windows XP is almost identical. You must be computer ADMINISTRATOR to perform this operation.

2.1.1 Provided Hardware

A DVD-ROM disk of the FASOPC Server software and a USB licensing key are provided.

ITEM	DESCRIPTION	
DVD ROM		**D72F-0405-PB00 –** Software with activation key. Provides unlimited* clients and 1 CNC connection. * determined by number of CNC points and PC performance.
USB license key		D72F-0405-PQ02 – 10 additional CNC connections D72F-0405-PQ03 – 20 additional CNC connections D72F-0405-PQ04 – 30 additional CNC connections D72F-0405-PQ05 – 40 additional CNC connections D72F-0405-PQ06 – 50 additional CNC connections D72F-0405-PQ07 – 100 additional CNC connections

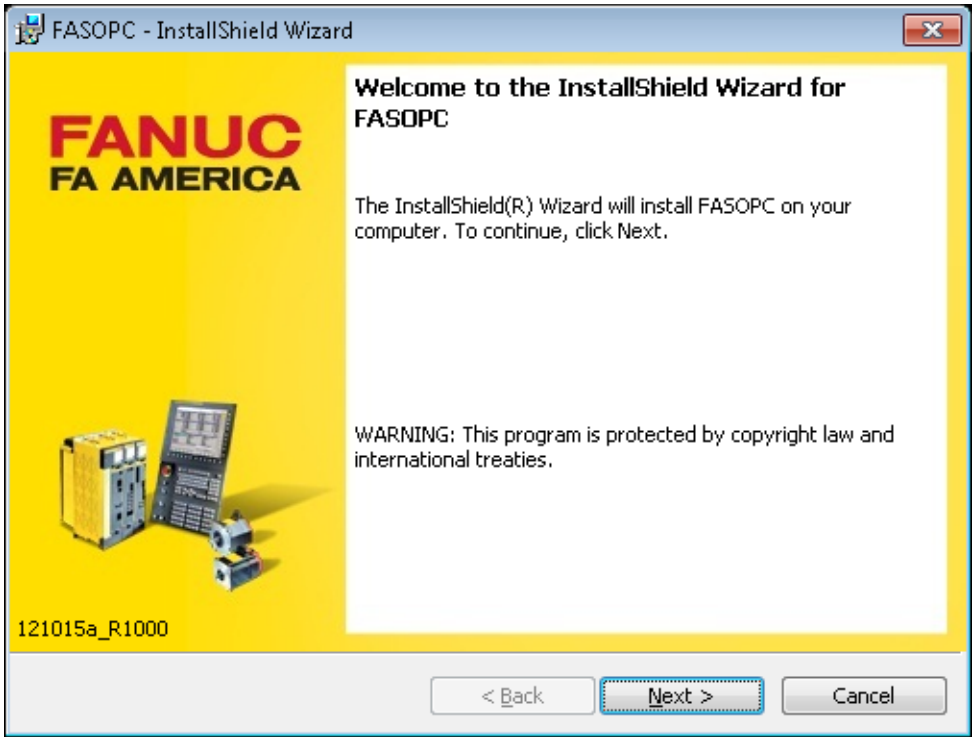
2.1.2 Software Installation

This section details the installation of the FASOPC Server software. The standard installation installs both the FASOPC Server and the FASOPC Configurator. If you select the CUSTOM installation it is possible to choose installation of either component individually.

1) **Insert the DVD-ROM** into the PC. The InstallShield wizard will automatically start.

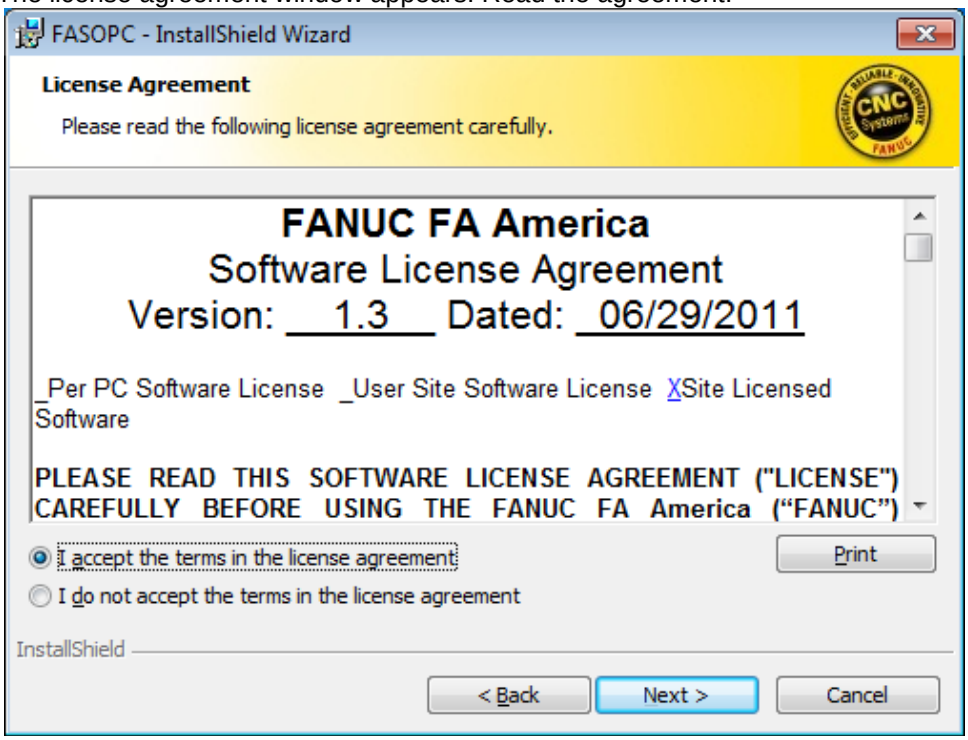
FASOPC - InstallShield Wizard
FANUC
FA AMERICA
Preparing to Install...
FASOPC Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Configuring Windows Installer
Cancel

The install shield wizard will confirm you are installing FASOPC software.


FASOPC - InstallShield Wizard
FANUC
FA AMERICA
Welcome to the InstallShield Wizard for FASOPC
The InstallShield(R) Wizard will install FASOPC on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
121015a_R1000
< Back
Next >
Cancel

2) **Click** "**NEXT**" to continue the installation.

The license agreement window appears. Read the agreement.


FASOPC - InstallShield Wizard
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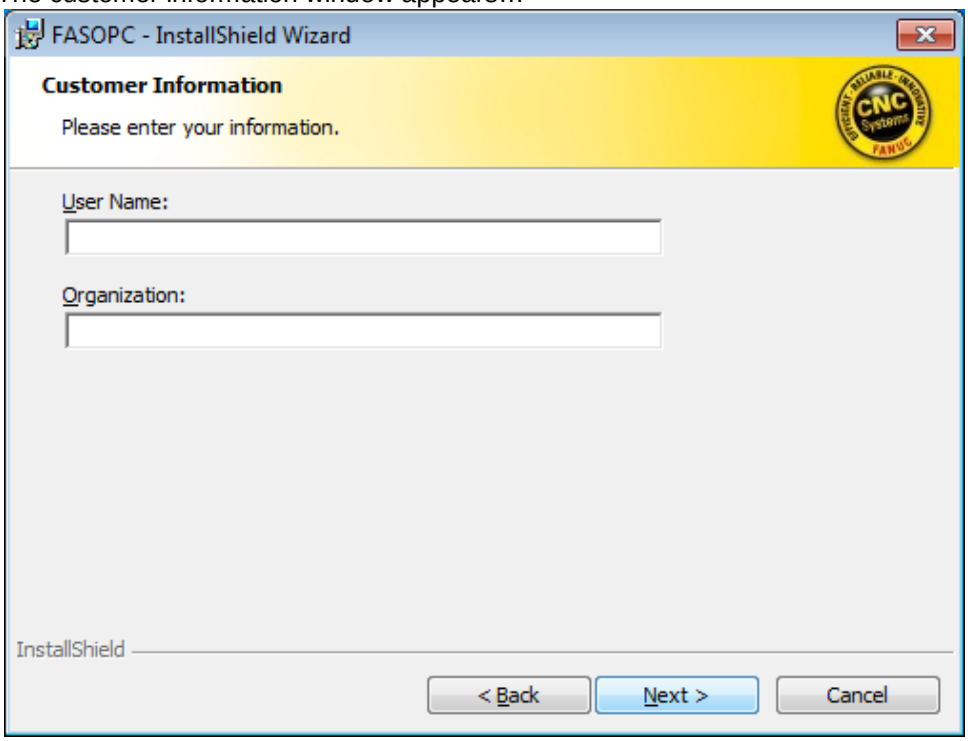
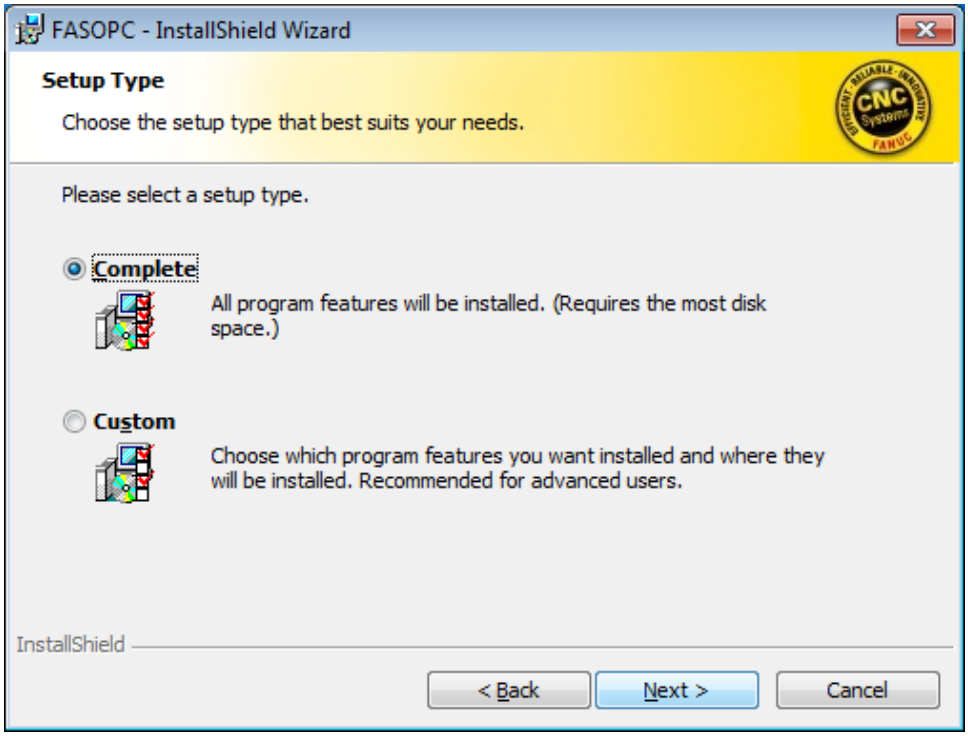
Software License Agreement
Version: 1.3 Dated: 06/29/2011
_Per PC Software License _User Site Software License XSite Licensed Software
PLEASE READ THIS SOFTWARE LICENSE AGREEMENT ("LICENSE") CAREFULLY BEFORE USING THE FANUC FA America ("FANUC")
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

3) **Click** "**I ACCEPT**" then **click** "**NEXT**" to continue the installation.

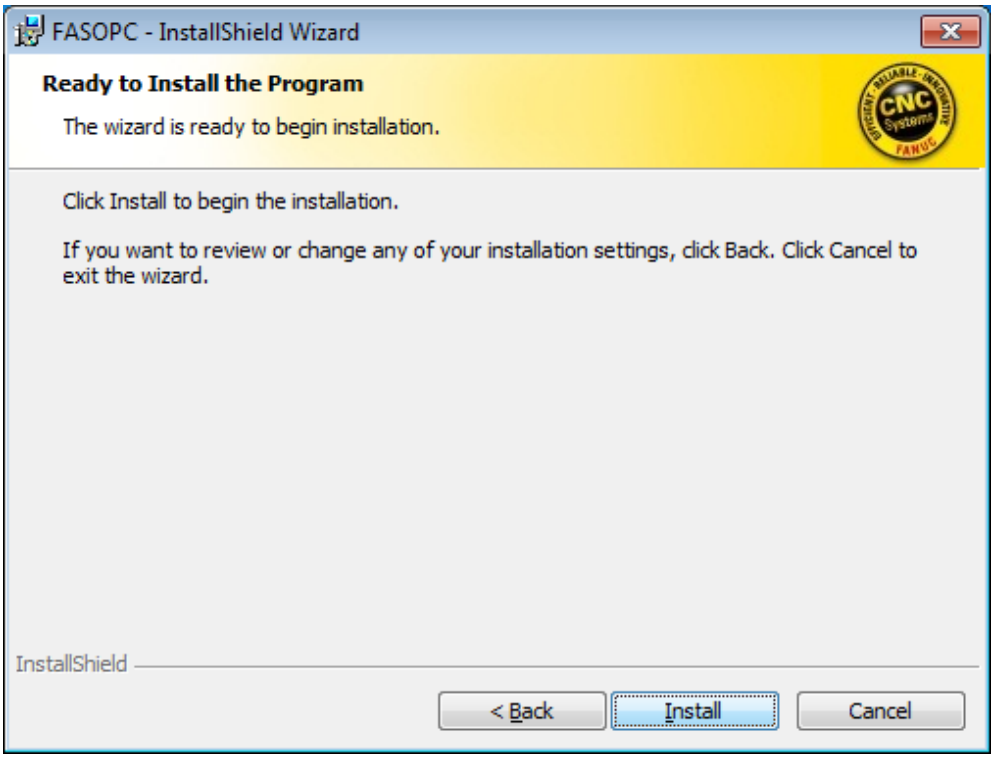
The customer information window appears…



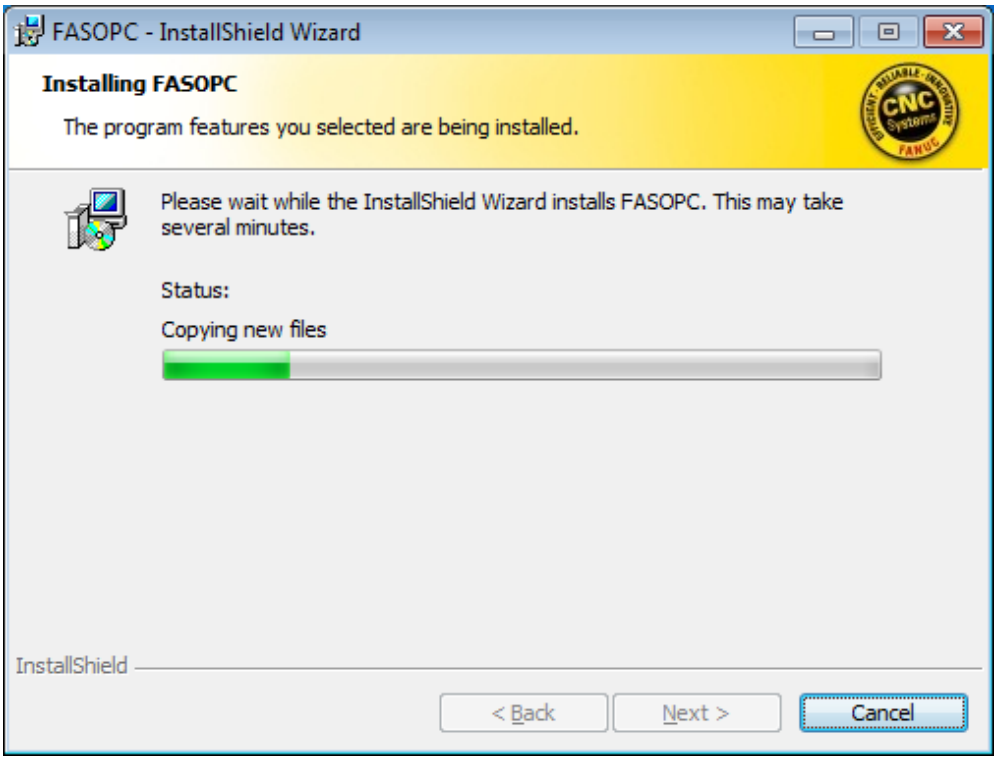
4) **Enter your** "**user name**" and "**organization**", then **click** "**NEXT**" to continue.


FASOPC - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

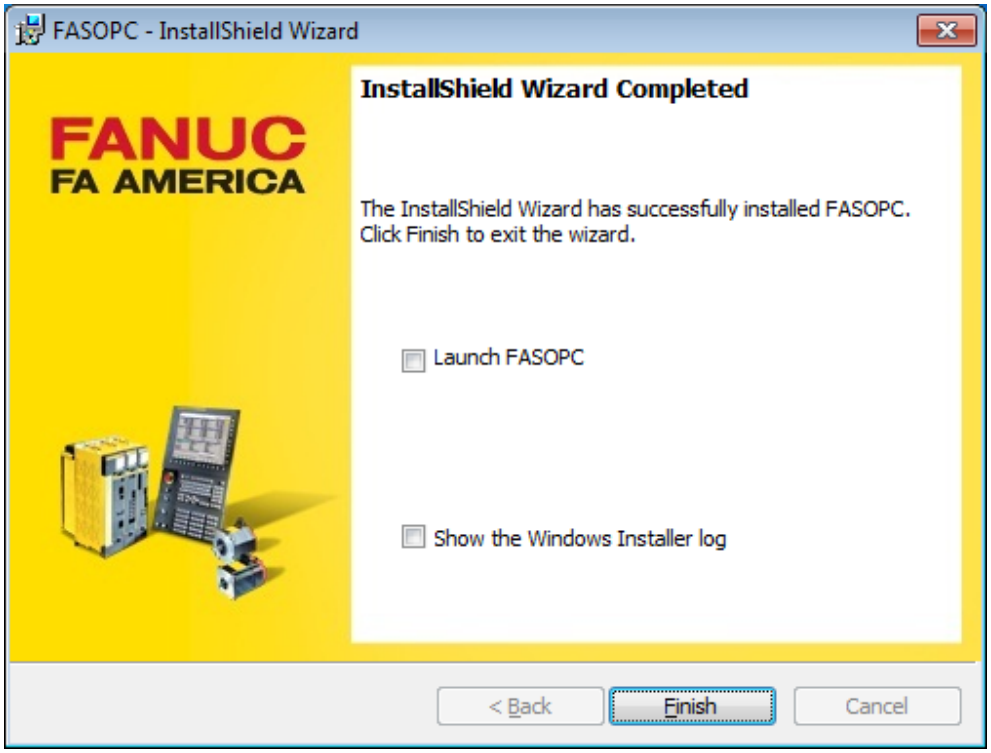
5) **COMPLETE is pre-selected**, **click** "**NEXT**" to install the server and configurator. Ready to install appears…


FASOPC - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

6) **Click** "**NEXT**" to continue the installation.


FASOPC - InstallShield Wizard
Installing FASOPC
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs FASOPC. This may take several minutes.
Status:
Copying new files
InstallShield
< Back
Next >
Cancel

The software installation will take a few minutes…
When done, the InstallShield Wizard COMPLETED window will appear.



7) **Click** "**FINISH**" button to complete the installation.

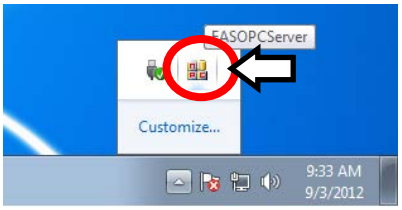
8) The "**FASOPC Configurator**" icon will appear on the desktop.

2.1.3 License Installation

Once installed, the software will run in demo mode for 30 days. A USB license key may be purchased to license this software indefinitely. Follow these instructions to install the license.

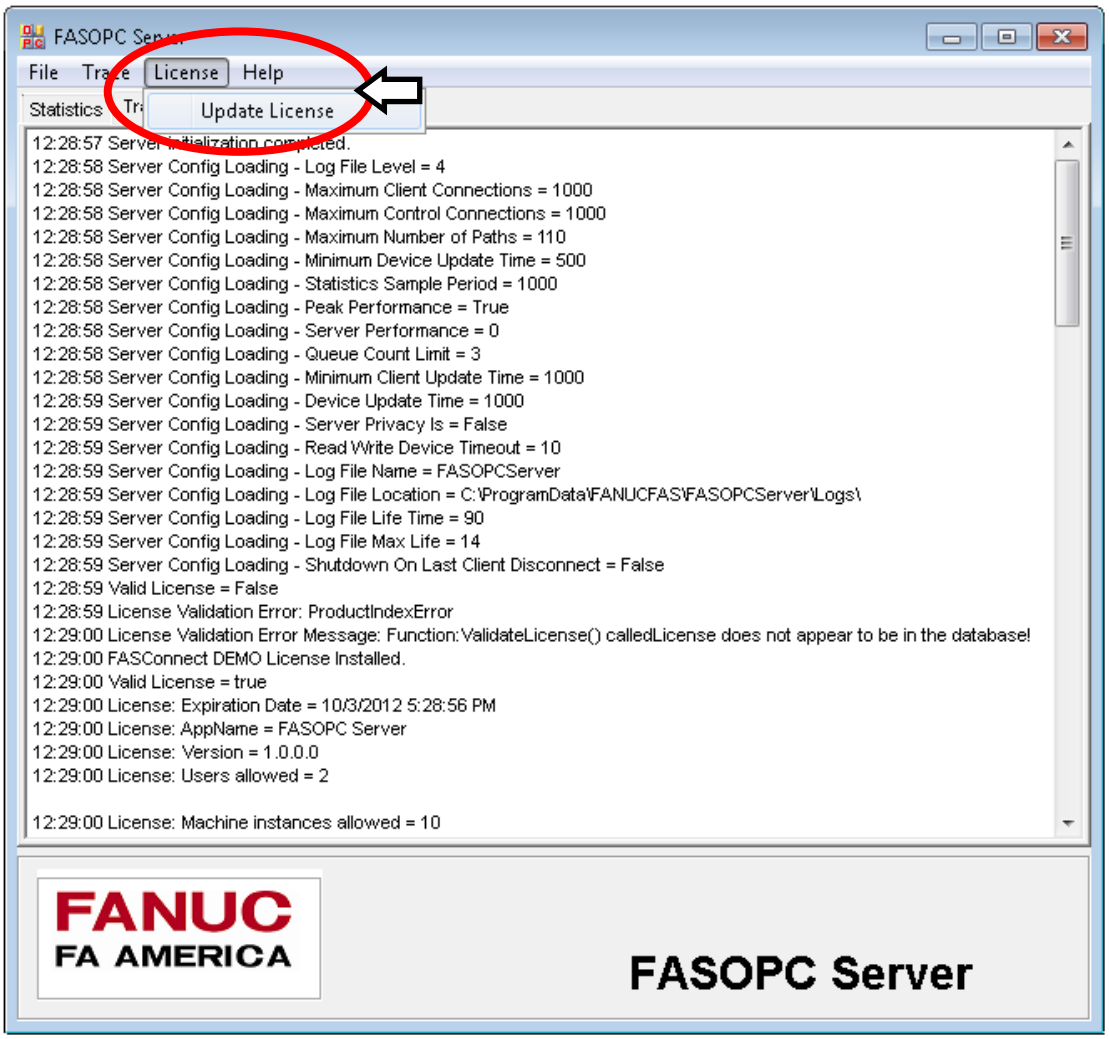
1) **Insert the USB key** into the PC that will act as the FASOPC server.

2) **Double-click the** "**OPC**" icon in the system tray, at the bottom of the screen near the clock. The FASOPC server window will appear.



3) **Click** "**LICENSE**" on the top menu.

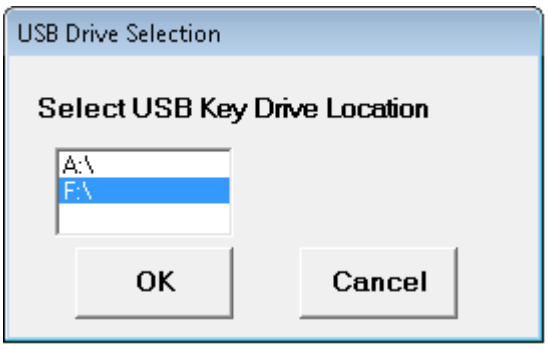
4) **Click** "**UPDATE LICENSE**" on the drop-down menu.


FASOPC Server
File
Trace
License
Help
Statistics
Update License
12:28:57 Server Initialization completed.
12:28:58 Server Config Loading - Log File Level = 4
12:28:58 Server Config Loading - Maximum Client Connections = 1000
12:28:58 Server Config Loading - Maximum Control Connections = 1000
12:28:58 Server Config Loading - Maximum Number of Paths = 110
12:28:58 Server Config Loading - Minimum Device Update Time = 500
12:28:58 Server Config Loading - Statistics Sample Period = 1000
12:28:58 Server Config Loading - Peak Performance = True
12:28:58 Server Config Loading - Server Performance = 0
12:28:58 Server Config Loading - Queue Count Limit = 3
12:28:58 Server Config Loading - Minimum Client Update Time = 1000
12:28:59 Server Config Loading - Device Update Time = 1000
12:28:59 Server Config Loading - Server Privacy Is = False
12:28:59 Server Config Loading - Read Write Device Timeout = 10
12:28:59 Server Config Loading - Log File Name = FASOPCServer
12:28:59 Server Config Loading - Log File Location = C:\ProgramData\FANUCFAS\FASOPCServer\Logs\
12:28:59 Server Config Loading - Log File Life Time = 90
12:28:59 Server Config Loading - Log File Max Life = 14
12:28:59 Server Config Loading - Shutdown On Last Client Disconnect = False
12:28:59 Valid License = False
12:28:59 License Validation Error: ProductIndexError
12:29:00 License Validation Error Message: Function:ValidateLicense() calledLicense does not appear to be in the database!
12:29:00 FASConnect DEMO License Installed.
12:29:00 Valid License = true
12:29:00 License: Expiration Date = 10/3/2012 5:28:56 PM
12:29:00 License: AppName = FASOPC Server
12:29:00 License: Version = 1.0.0.0
12:29:00 License: Users allowed = 2
12:29:00 License: Machine instances allowed = 10
FANUC
FA AMERICA
FASOPC Server

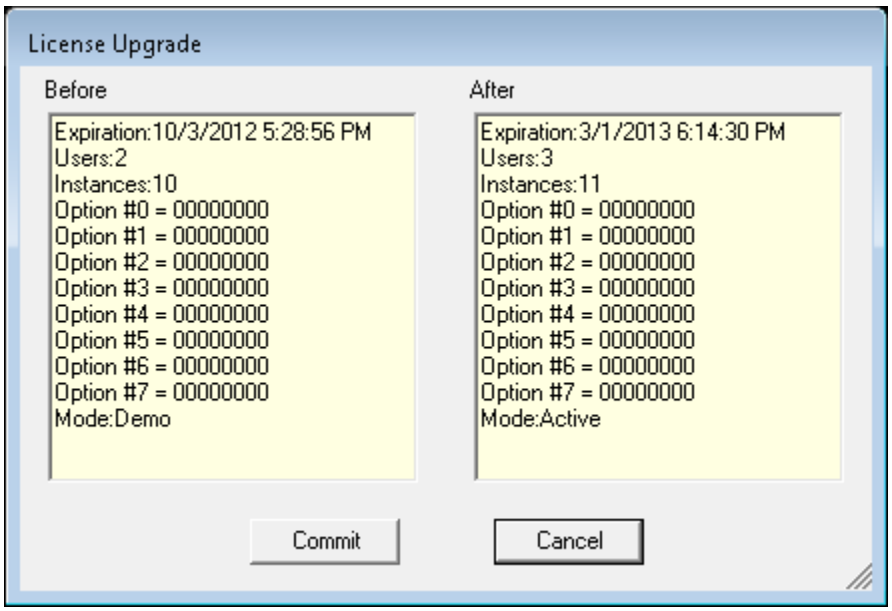
The USB drive selection window will appear.

5) **Click the appropriate drive letter.**

6) **Click the** "**OK**" button.



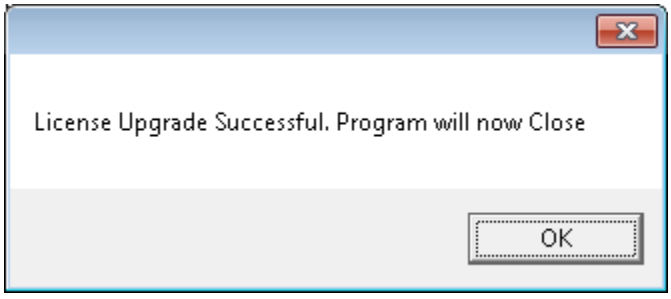
The LICENSE UPGRADE window will appear.



On the left side of this window the current license information is shown, on the right side are the details of the new license that will be accepted when the COMMIT button is clicked.

7) **Click the** "**COMMIT**" button to accept the new licensing values.

The confirmation window will appear.



8) **Click the** "**OK**" button to complete the licensing process.

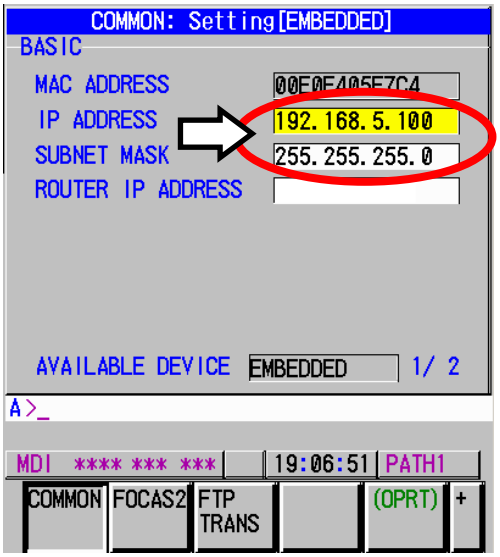
The FASOPC server will shut down and the new licensing will take affect the next time the server is started. The server will restart if a client requests data or it may be restarted in the FASOPC configurator software.

2.2 System Confirmation

The operation of the user interface must be performed as computer Administrator.

2.2.1 Confirm CNC Connection

This procedure confirms the network connection between the CNC and the FASOPC server. In this example the OPC Server has an IP address of 192.168.5.50 and the CNC that is being confirmed has an IP address of 192.168.5.100. This example assumes a 30*i* Model A control unit. Operation may be slightly different on other control series or models.



1) **Press the** SYSTEM **button** on the MDI key pad.

2) **Press the** (+) **soft key** to change the menu.

3) **Choose** (EMBED PORT) **or** (ETHER BOARD) **key.**
The **EMBED PORT** is on the CNC main board.
The **ETHER BOARD** is an option board.

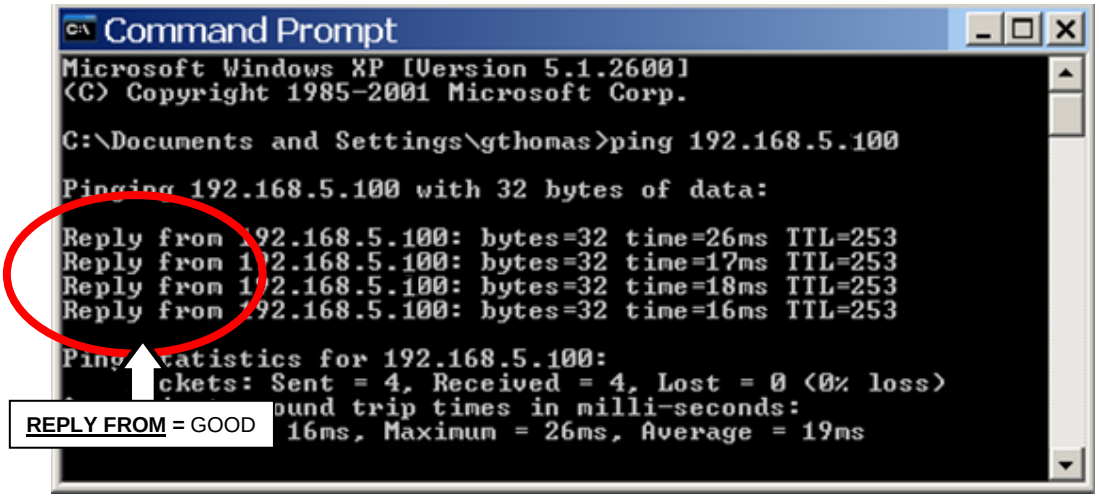
4) Confirm the **IP ADDRESS** is **192.168.5.100** and the **SUBNET MASK** is **255.255.255.0**

5) **Press the** (FOCAS2) **soft key** on the CNC menu. Confirm the PORT NUMBER (TCP) is **8193**.

On the PC…

6) **Choose START -> PROGRAMS -> ACCESSORIES -> COMMAND PROMPT**
The command prompt window will appear.

7) **Type "PING 192.168.5.100"** then press "**ENTER**" on the keyboard.
The connection will be tested four times. "**REPLY FROM**" indicates a good connection.


Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\gthomas>ping 192.168.5.100
Pinging 192.168.5.100 with 32 bytes of data:
Reply from 192.168.5.100: bytes=32 time=26ms TTL=253
Reply from 192.168.5.100: bytes=32 time=17ms TTL=253
Reply from 192.168.5.100: bytes=32 time=18ms TTL=253
Reply from 192.168.5.100: bytes=32 time=16ms TTL=253
Ping statistics for 192.168.5.100:
ckets: Sent = 4, Received = 4, Lost = 0 (0% loss)
ound trip times in milli-seconds:
16ms, Maximum = 26ms, Average = 19ms
REPLY FROM = GOOD

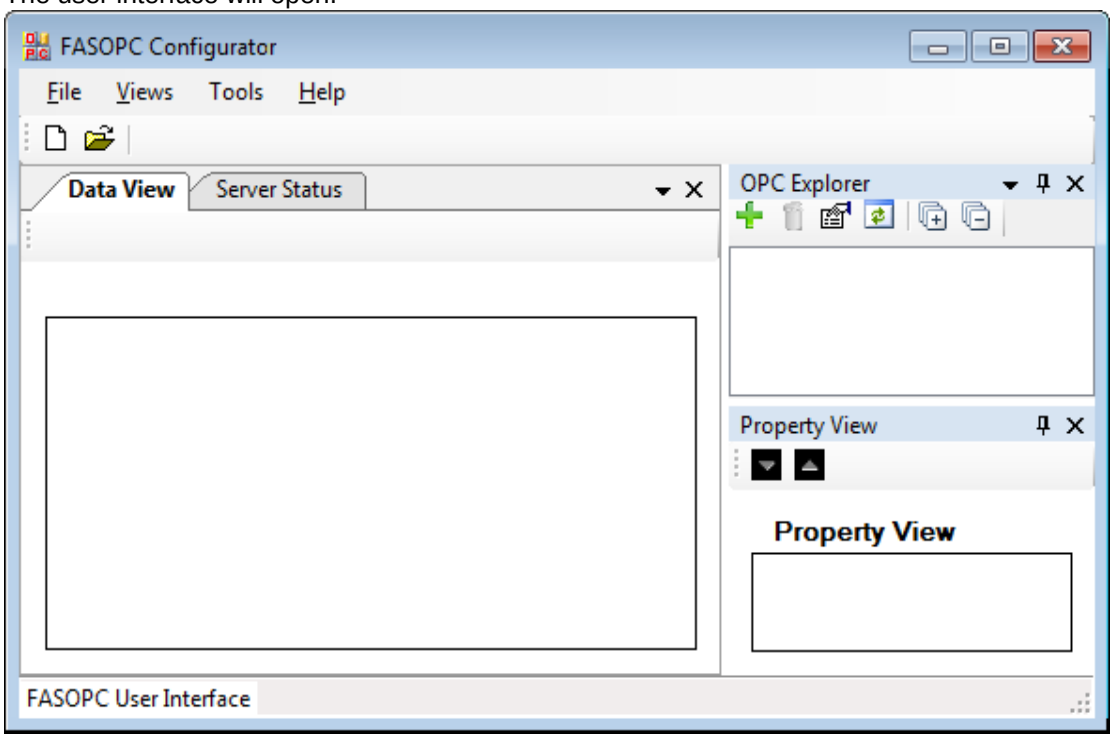
The integrity of the connection is tested four times. If the "**REPLY FROM**" response is not received, confirm the network switch/hub is connected appropriately and the IP addresses of the FASOPC server and CNC are correct.

2.2.2 Confirm UI Operation

This section focuses on the basic setup and operation of the FASOPC software. More details are provided in later sections of this manual.

1) **Double-Click the** "**FASOPC Configurator**" icon on the desktop.

The user interface will open.



2) **Click** "**FILE**" on the top menu.

3) **Click** "**New Configuration**" on the drop-down menu.

4) **Enter** "**MyConfig1**" in the ENTER CONFIGURATION NAME field.

5) **Click the** "**DONE**" button.

6) **Click** "**FILE**" on the top menu.

7) **Select** "**Save Configuration**" on the drop-down menu.

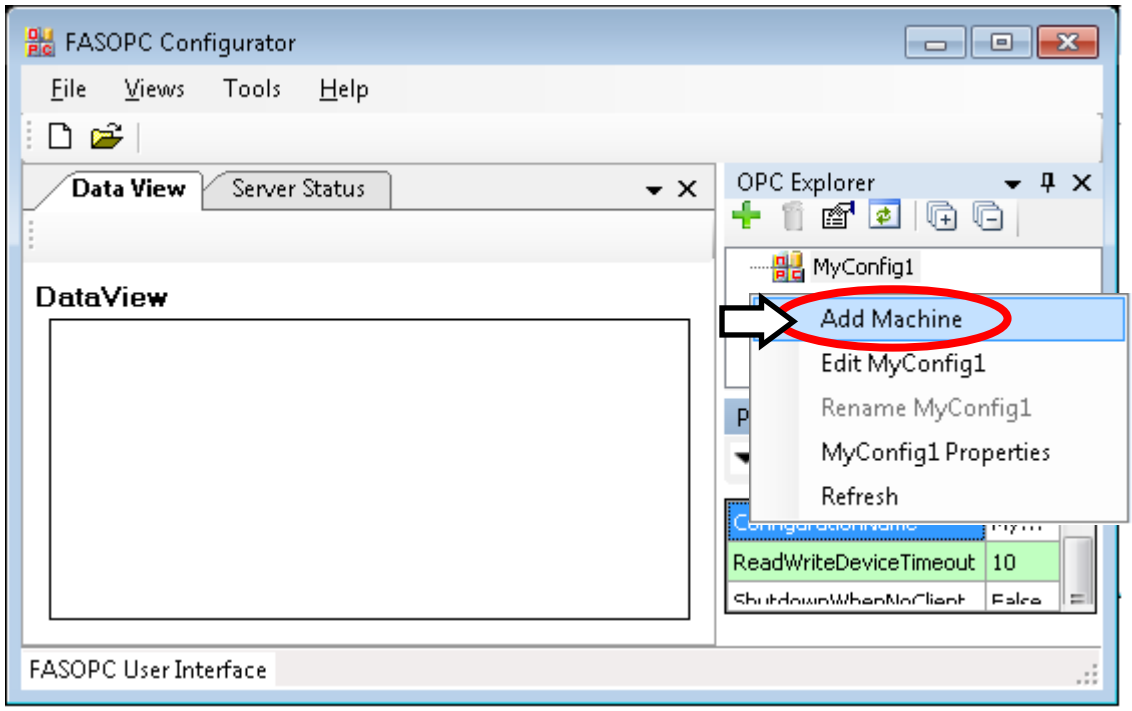
8) **Click the** "**SAVE**" button. The file '***myconfig1.fs2***' will be created in the default folder.

NOTE

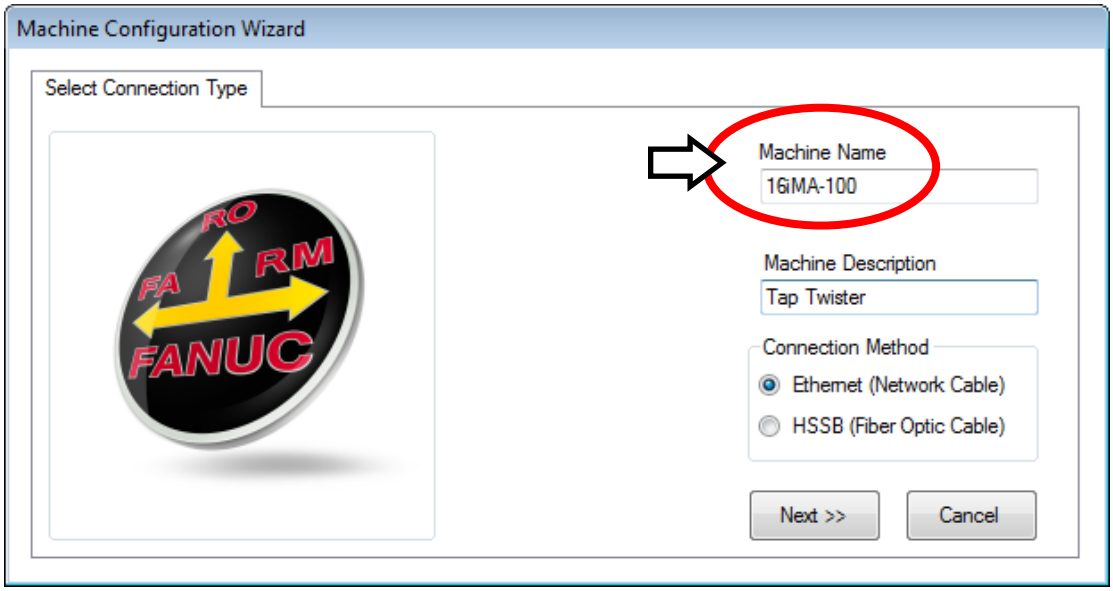
The default save folder location is…
C:\PROGRAMDATA\FANUCFAS\FASOPCUI

9) **Right-click** "**MyConfig1**" in the ***OPC Explorer*** window.

10) **Select** "**Add Machine**" on the pop-up menu.

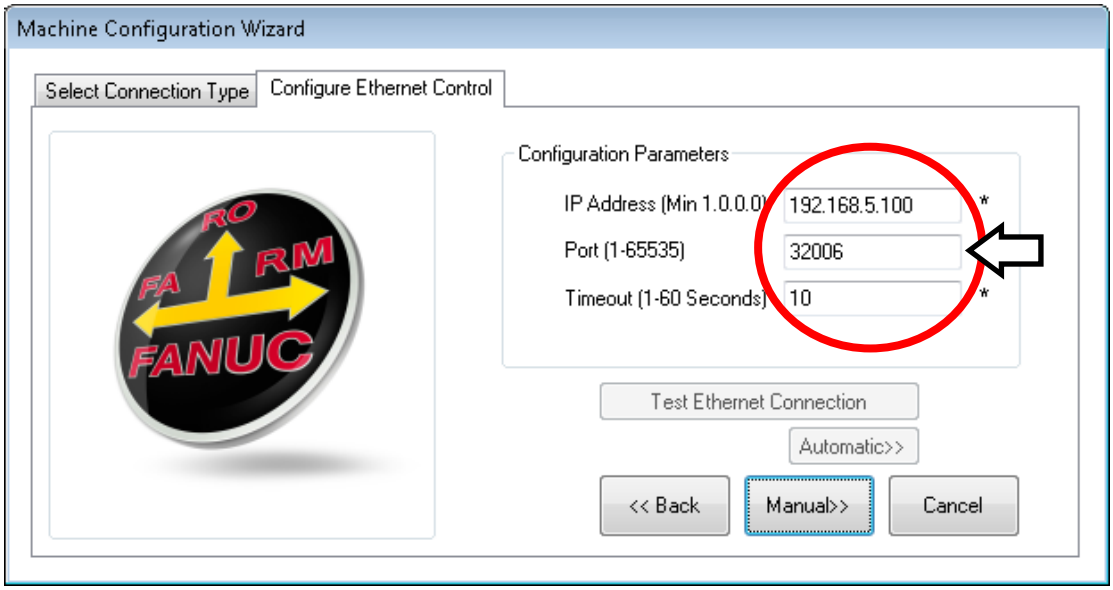


The ***Machine Configuration Wizard*** starts…



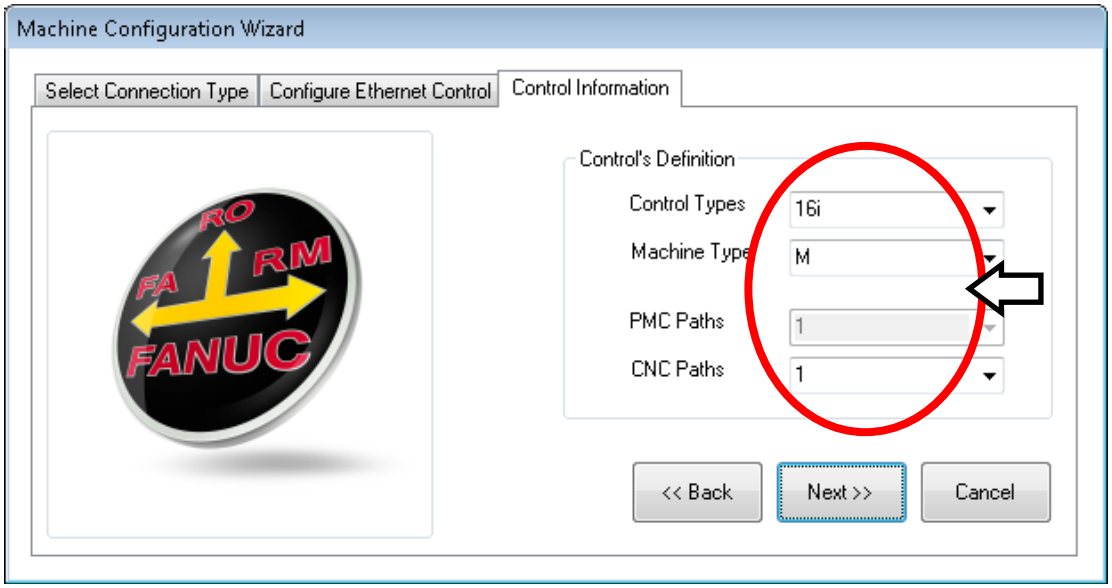
11) **Enter the** "**16iMA-100**"

12) **Click the** "**NEXT**" button.



13) **Enter the** "**IP ADDRESS**", "**PORT**", and "**TIMEOUT**" then click "**MANUAL**".

The ***Control Information*** tab appears in the wizard.

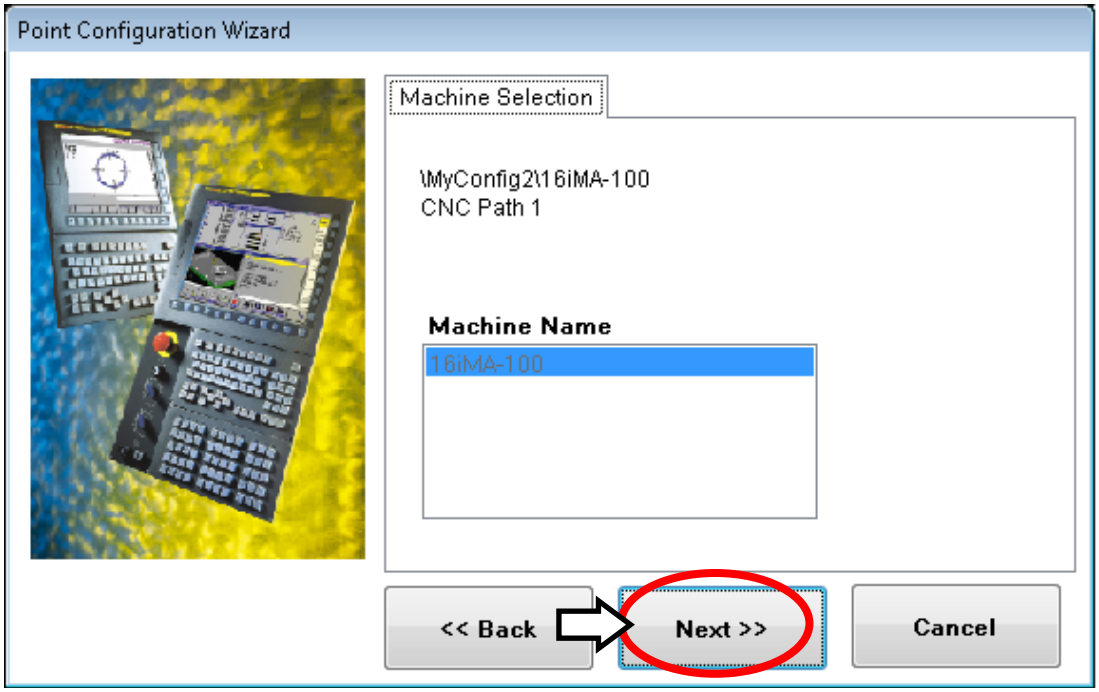


14) **Select the** "**CONTROL TYPES**", "**PMC PATHS**", and "**CNC PATHS**" then click "**NEXT**"**.**
The ***Path Naming*** tab appears in the wizard.

15) **Enter** "**MEGAMILL**" **in the** "**NAME**" field of this CNC path, then click "**DONE**".
A machine now appears in ***OPC Explorer*** view.

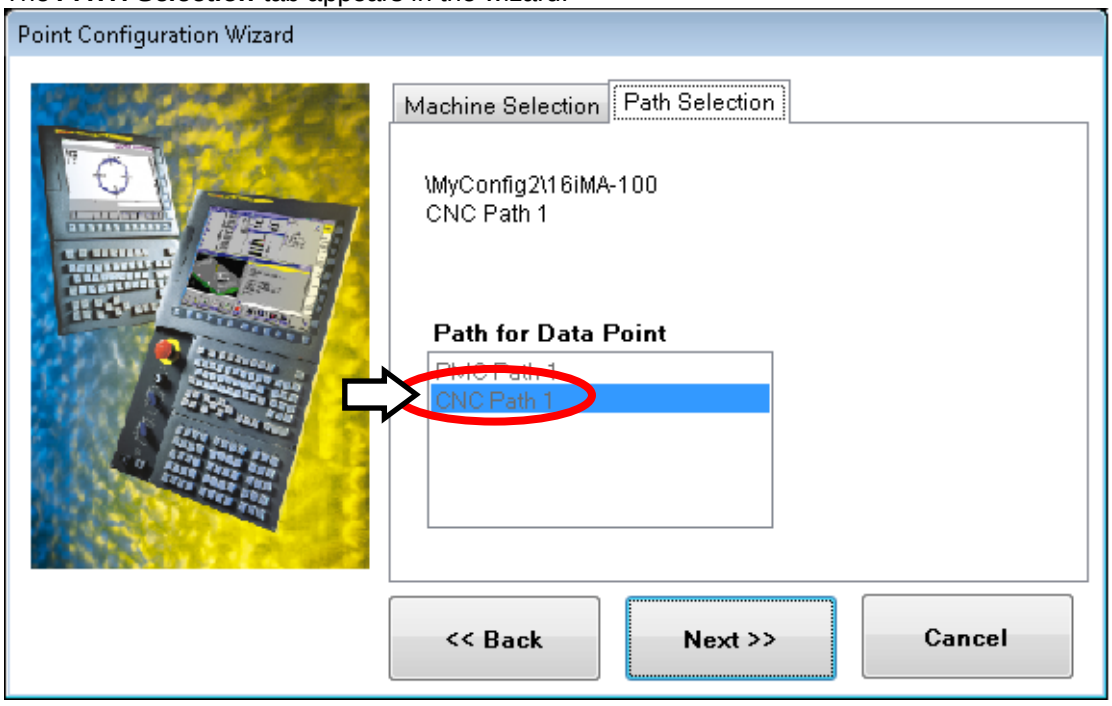
16) **Right-click** "**16iMA-100**" in the ***OPC Explorer*** window.

17) **Select** "**Add Point to 16iMA-100**" on the pop-up menu.
The ***Point Configuration Wizard*** starts…



18) **Click the** "**NEXT**" button.

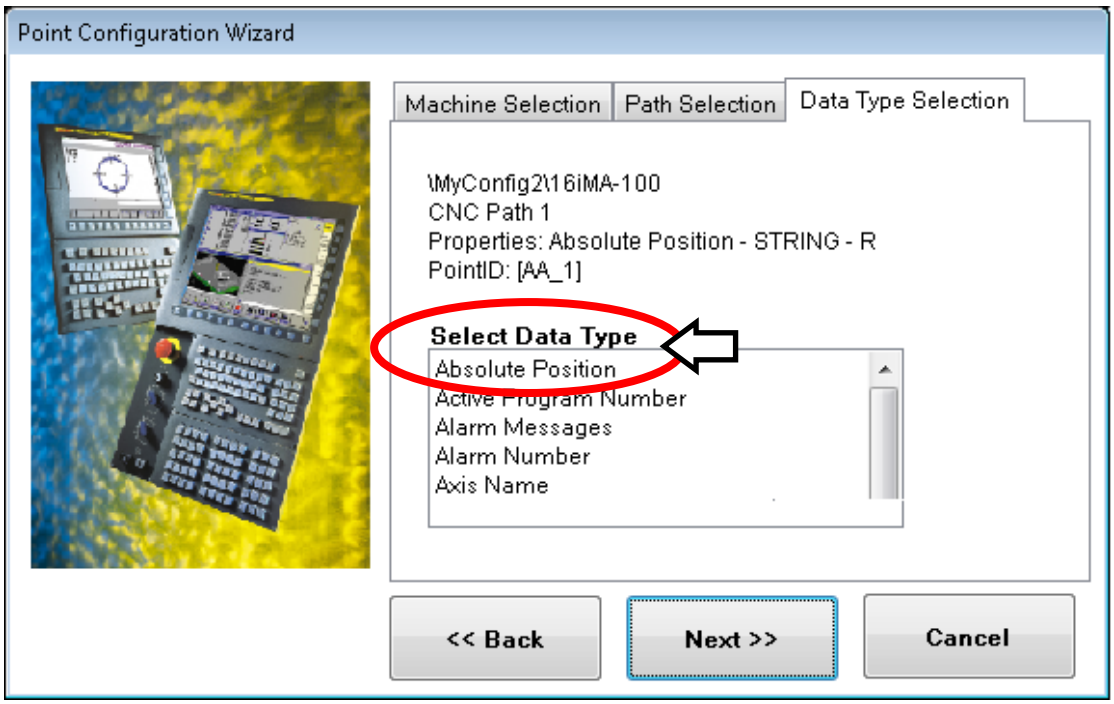
The ***PATH Selection*** tab appears in the wizard.



19) **Select** "**CNC Path 1**" in the path for data point list box.

20) **Click the** "**NEXT**" button. .

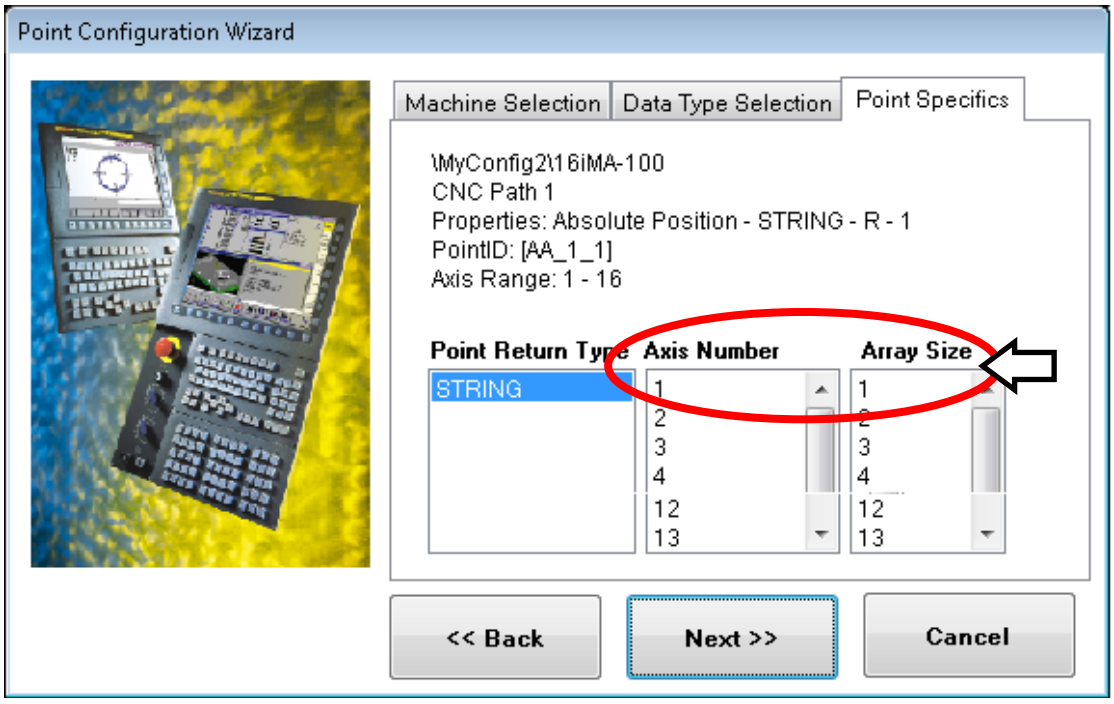
The ***Data Type Selection*** tab appears in the wizard.



21) **Select** "**Absolute Position**" in the data type list box,

22) **Click the** "**NEXT**" button.

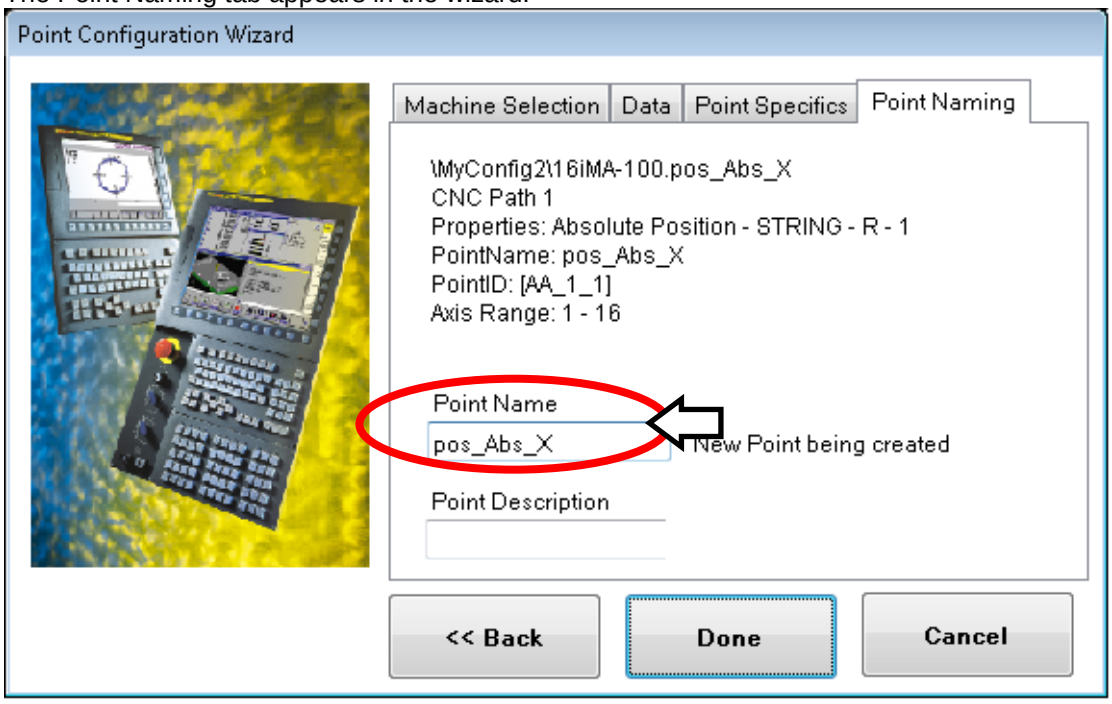
The ***Point Specifics*** tab appears in the wizard.



23) **Select** "**1**" in the axis number and array size list boxes,

24) **Click the** "**NEXT**" button.

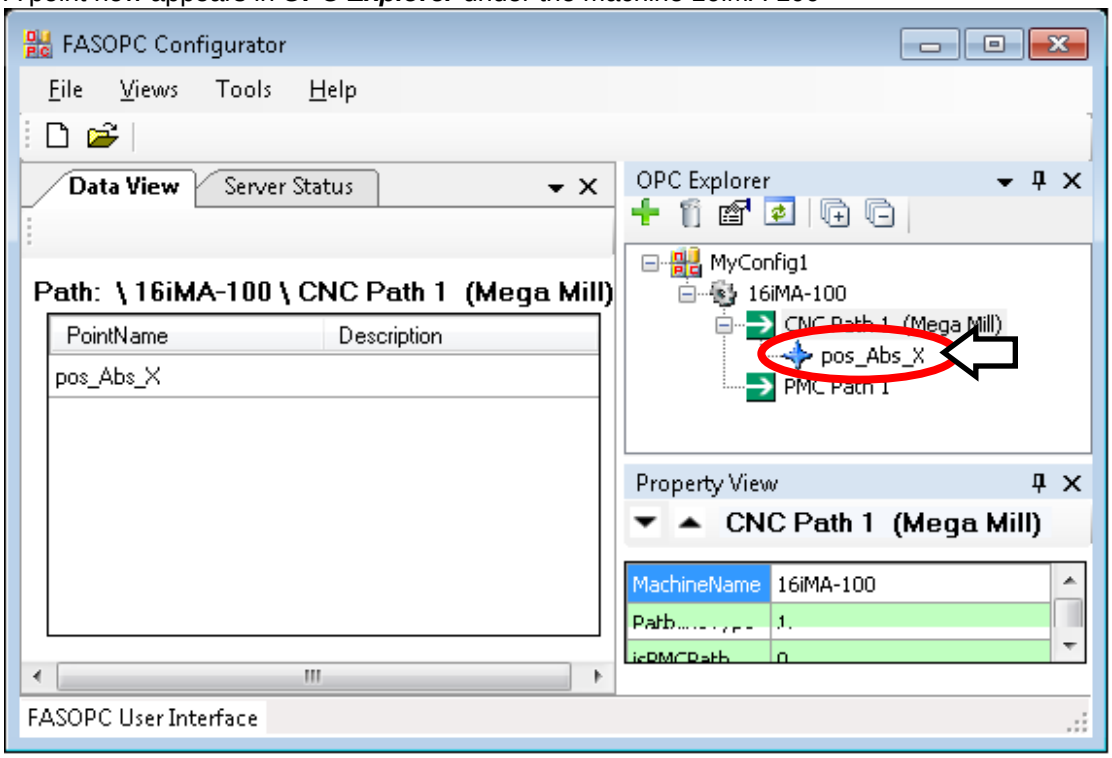
The Point Naming tab appears in the wizard.



25) **Enter** "**enter the point name**", for example: POS_ABS_X.

26) **Click the** "**DONE**" button.

A point now appears in ***OPC Explorer*** under the machine 16iMA-100

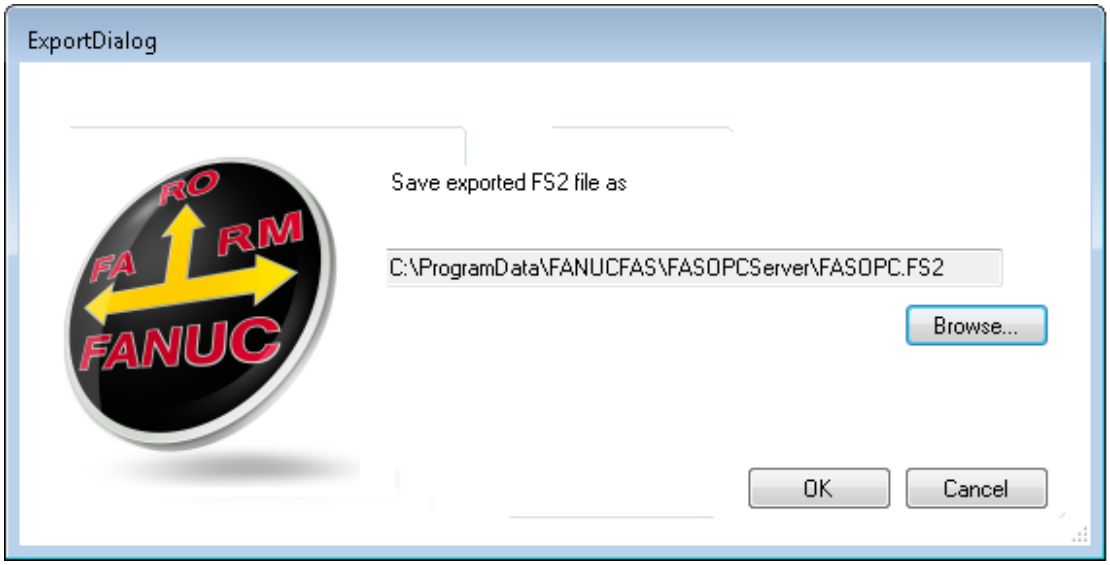


27) **Click** "**FILE**" on the top menu.

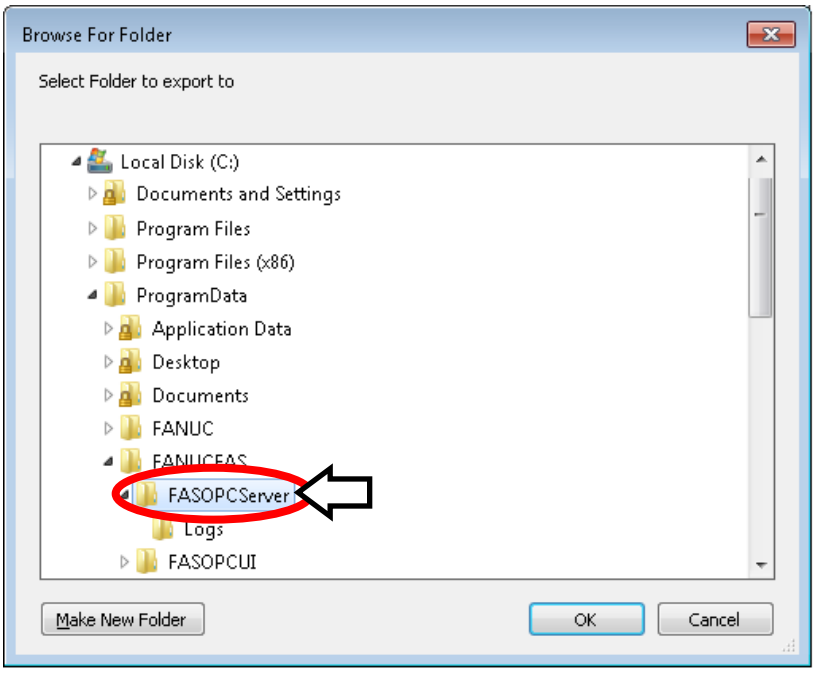
28) **Select** "**Save Configuration**" on the drop-down menu.
This saves to '***C:\PROGRAMDATA\FANUCFAS\FASOPCUI*** folder.

29) **Click the** "**FILE**" on the top menu.

30) **Select** "**EXPORT**" on the drop-down menu.



31) **Click the** "**Browse**" button.
Navigate to the '***C:\PROGRAMDATA\FANUCFAS\FASOPCSERVER*** folder.
This is the location where the OPC Server will load it's configuration from.

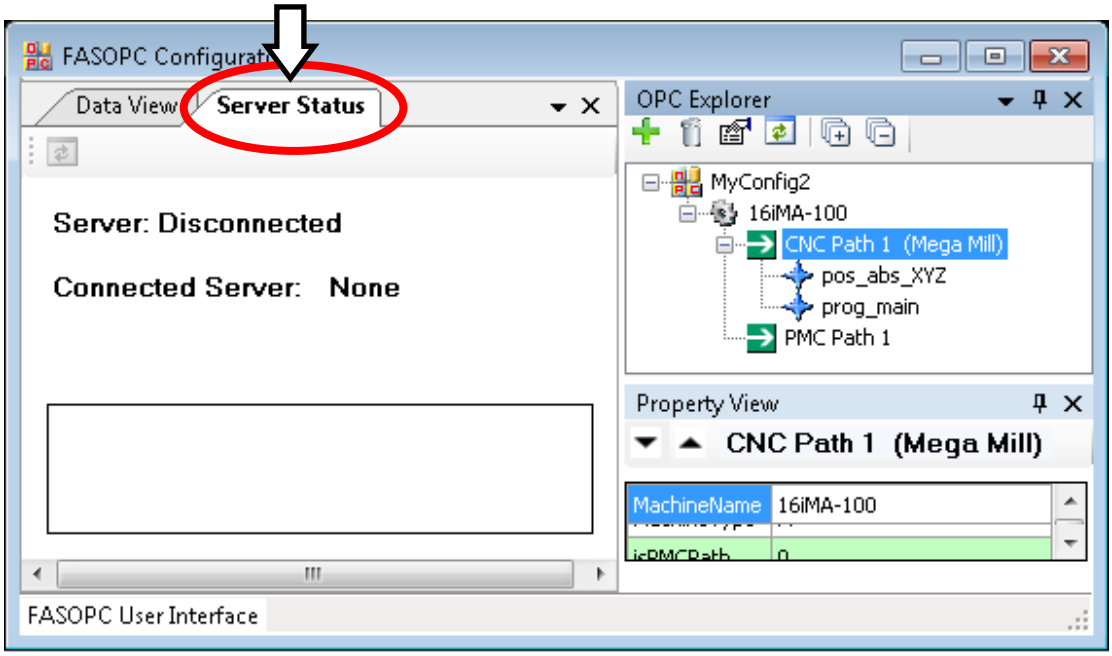


32) **Click the** "**OK**" button, then **click the** "**OK**" button. The export dialog window closes.

2.2.3 Confirm Server Connection

The next step is to confirm the FASOPC Server will start. Follow the procedure below.

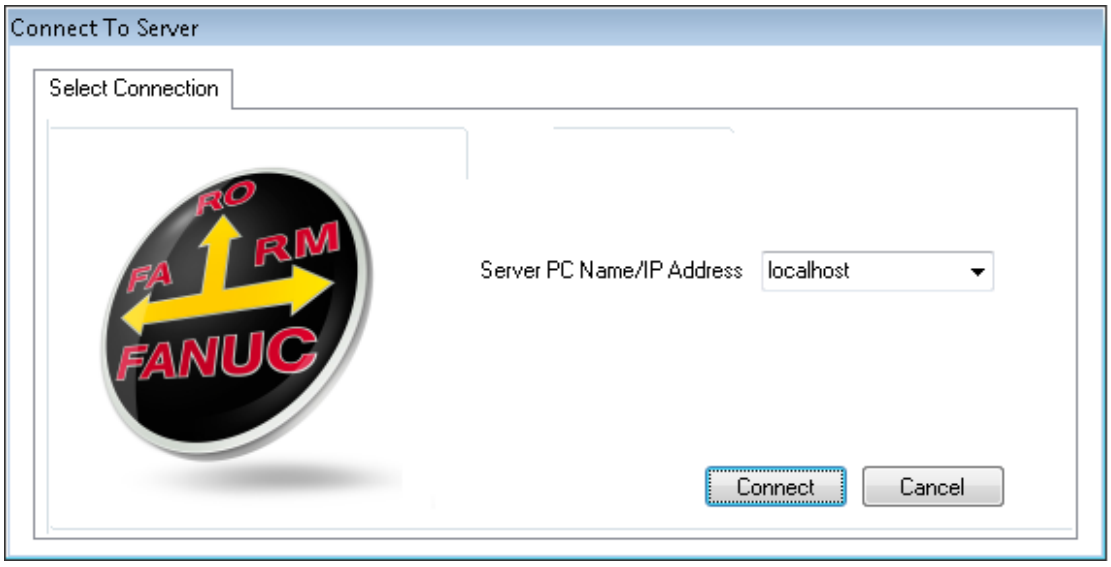
1) **Click the** "**SERVER STATUS**" tab next to Data View. The user interface will open.



2) **Click** "**TOOLS**" on the top menu.

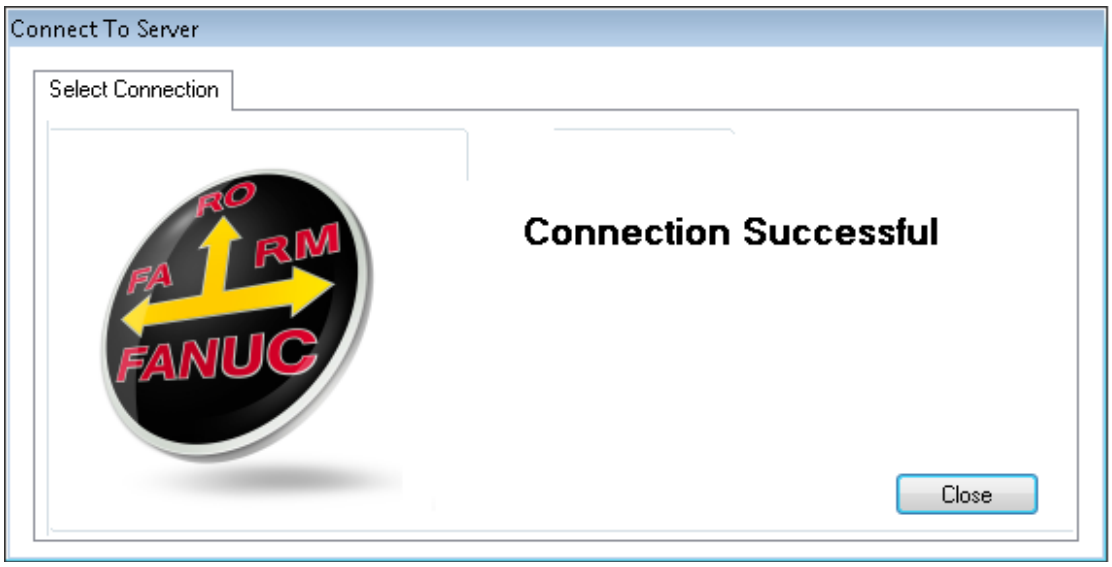
3) **Click** "**SERVER**" on the drop-down menu.

4) **Click** "**CONNECT TO SERVER**" choice. Local Host is pre-selected in the drop-down box.



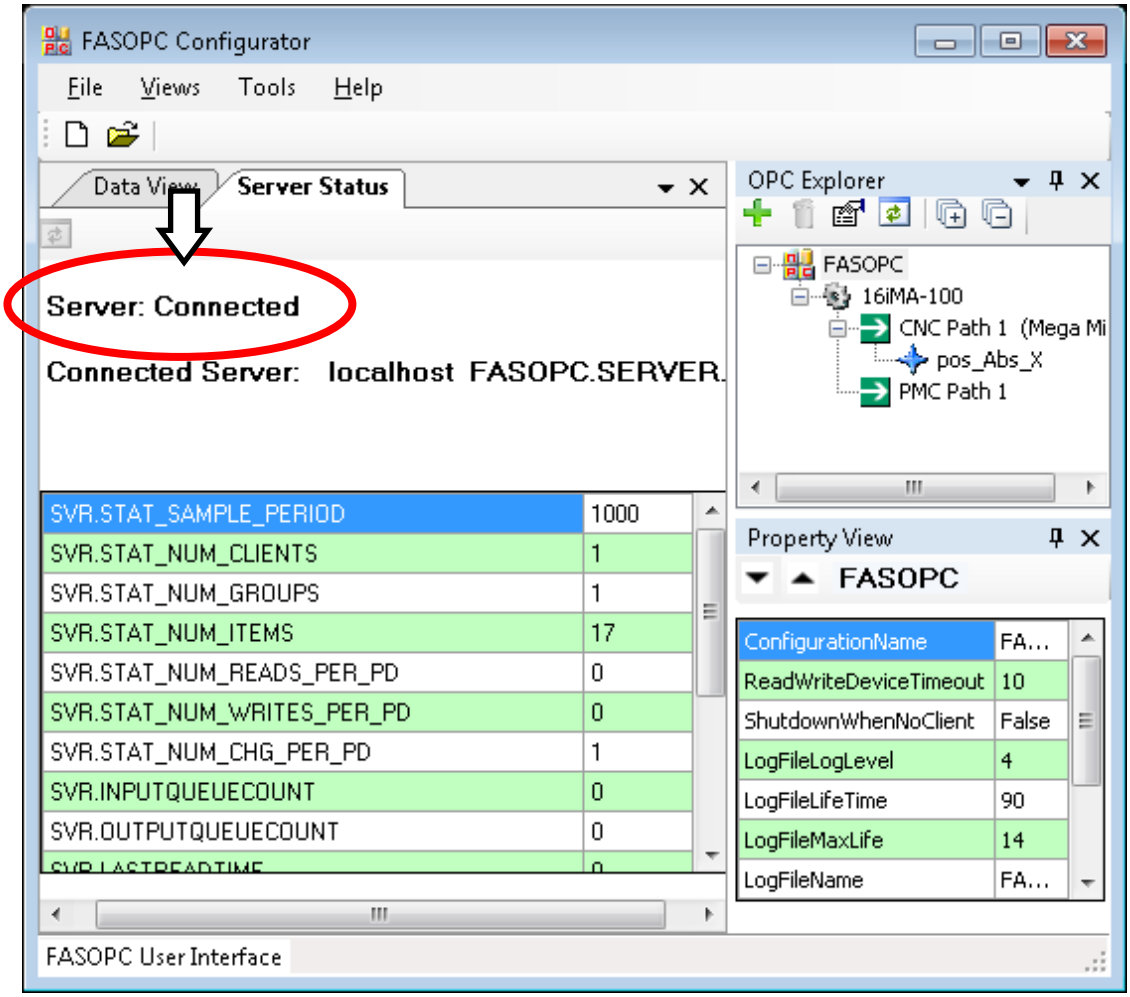
5) **Click the** "**CONNECT**" button to establish connection with the server.

The message **CONNECTION SUCCESSFUL** appears.



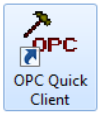
7) **Click the** "**CLOSE**" button.

The ***Server Status*** tab should now show live data.

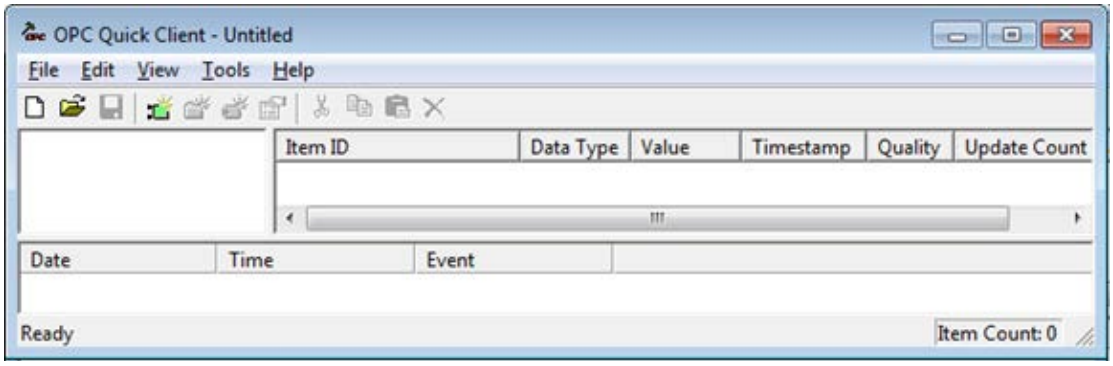


2.2.4 Confirm Local Client Access

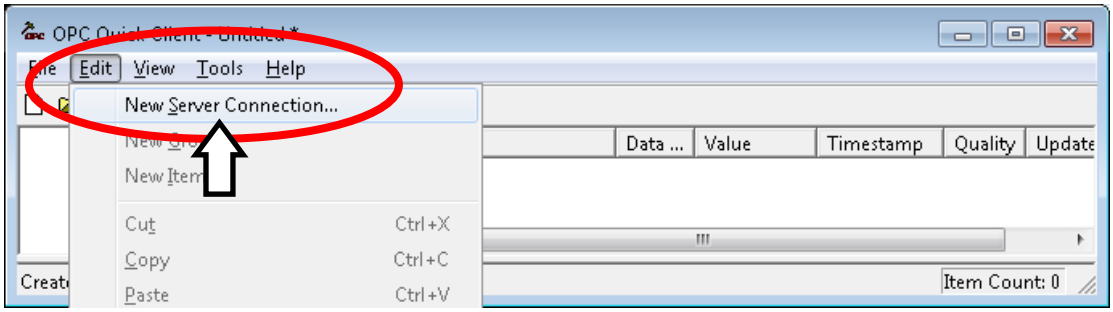
This section details local client access to the FASOPC Server. In this example the Software Toolbox OPC Quick Client freeware is explained.

1) **Double-Click the** "**OPC QUICK CLIENT**" icon on the desktop. 

The user interface will open.

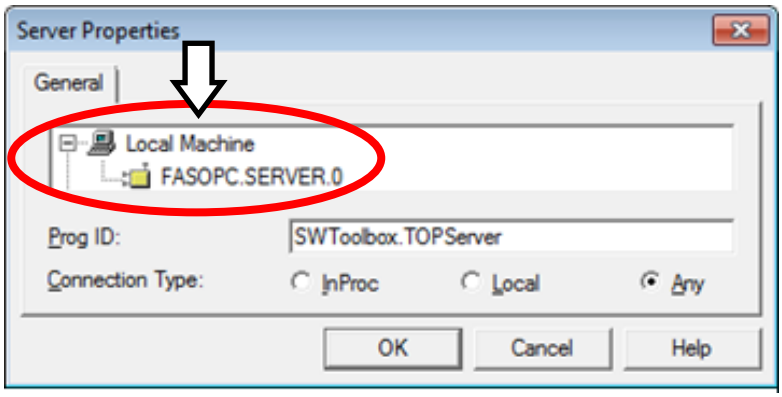


2) **Click** "**EDIT**" on the top menu.



3) **Click** "**NEW SERVER CONNECTION**" on the drop-down menu.

4) **Under** "**LOCAL MACHINE**" click on FASOPC.SERVER.0.

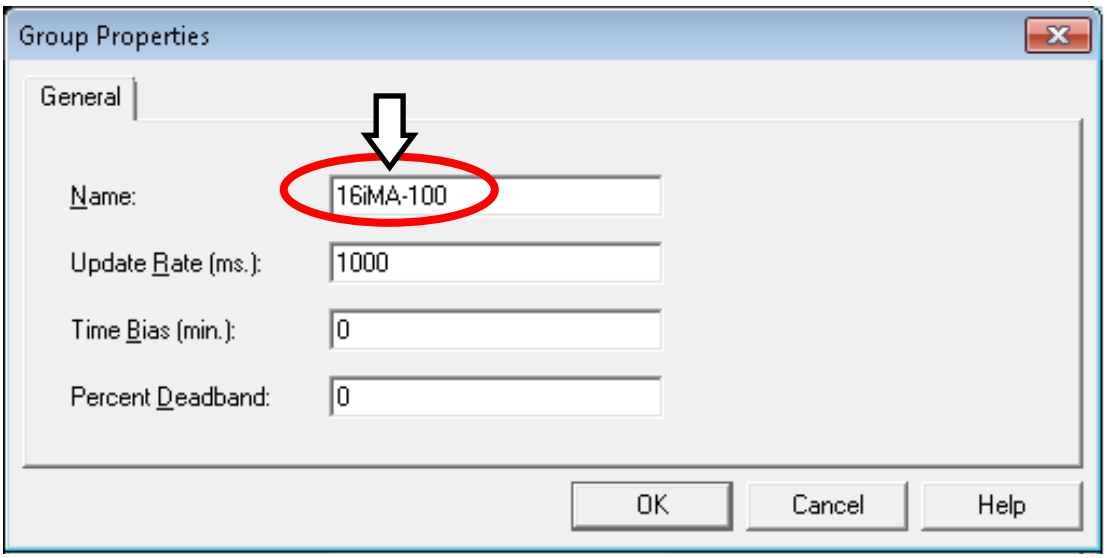


5) **Click the** "**OK**" button.

6) **Click** "**EDIT**" on the top menu.

7) **Click** "**NEW GROUP**" on the drop-down menu

8) **Enter** "**16iMA-100**" in the NAME field.

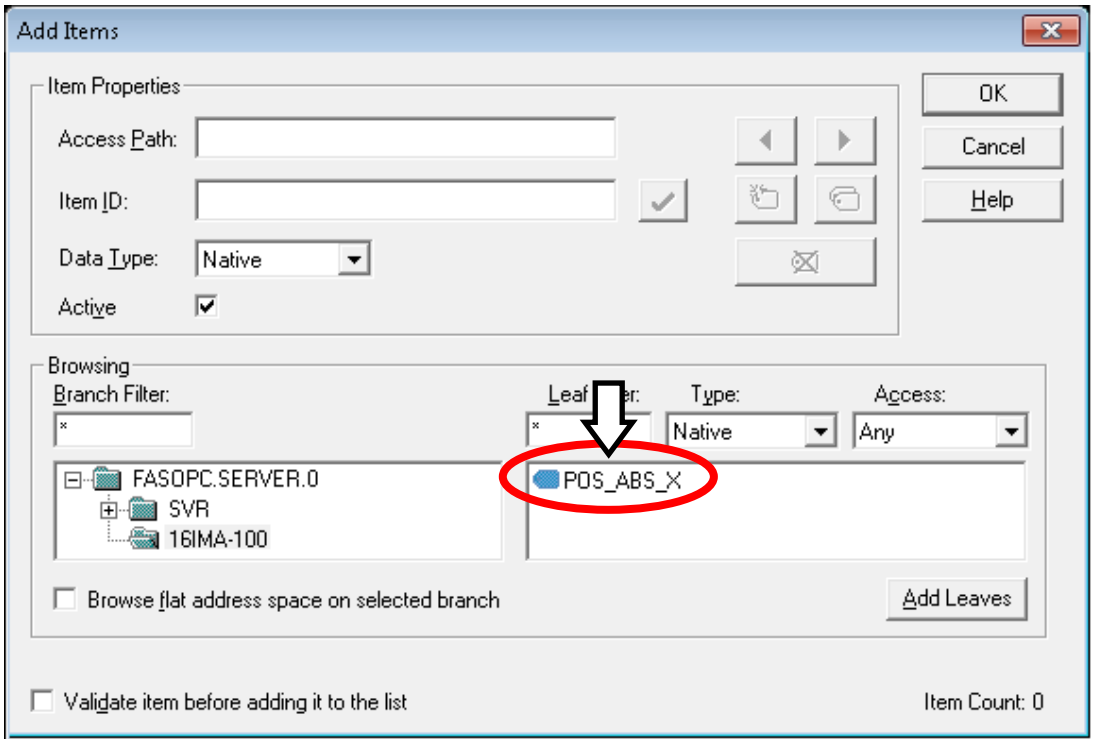


9) **Click the** "**OK**" button.

10) **Click** "**EDIT**" on the top menu.

11) **Click** "**NEW ITEM**" on the drop-down menu.

12) **Under FASOPC.SERVER.0** click on "**16iMA-100.**"

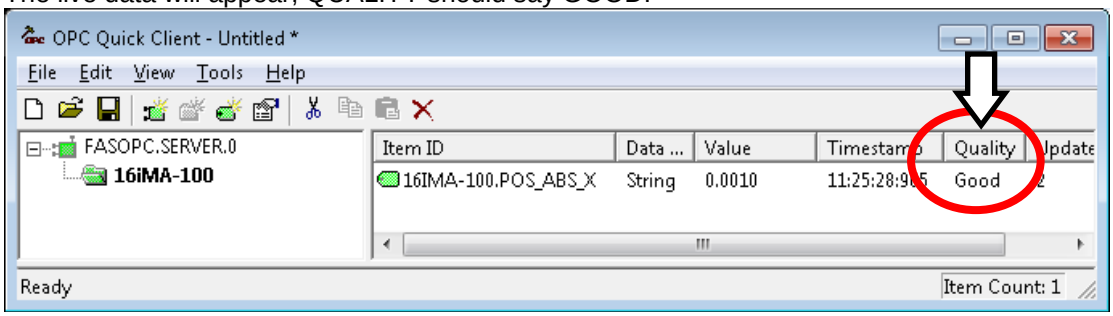


13) **Click** "**POS ABS X**" in the leaf browsing field.

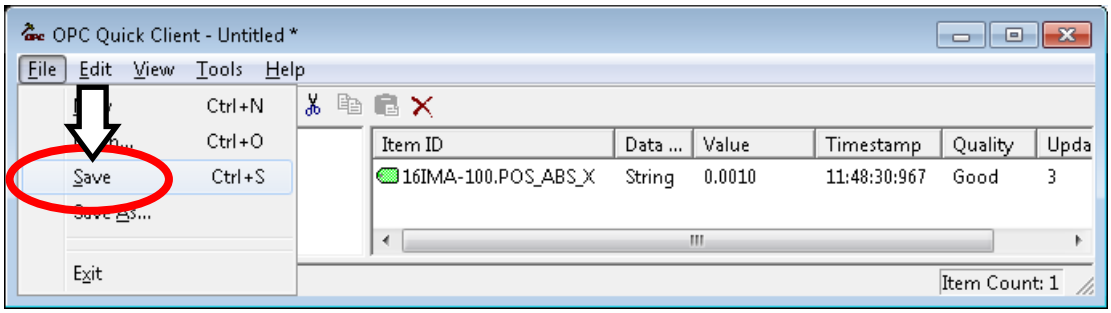
14) **Click the** "**ADD LEAVES**" button.

15) **Click the** "**OK**" button

The live data will appear, QUALITY should say GOOD.

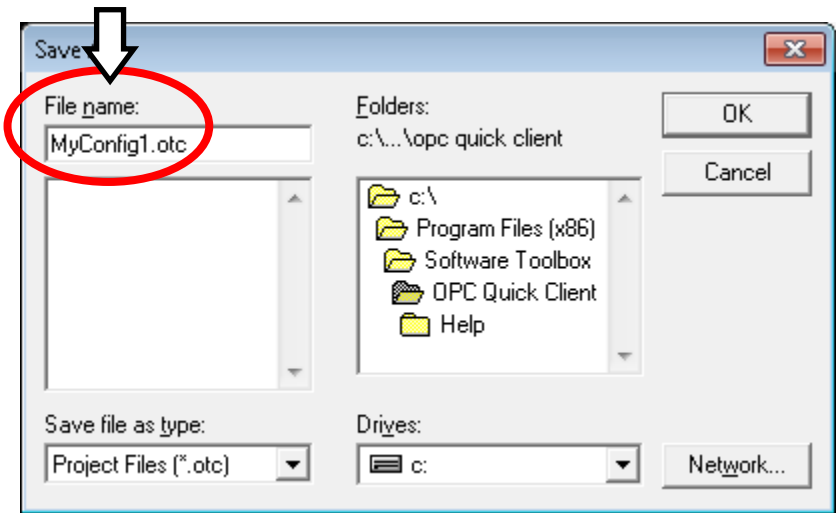


16) **Click** "**FILE**" on the top menu.



17) **Click** "**SAVE**" on the drop-down menu.

18) **Enter** "**MyConfig1.otc**" in the FILE NAME field.



19) **Click the** "**OK**" button.
The configuration file will be saved in the SOFTWARE TOOLBOX folder.

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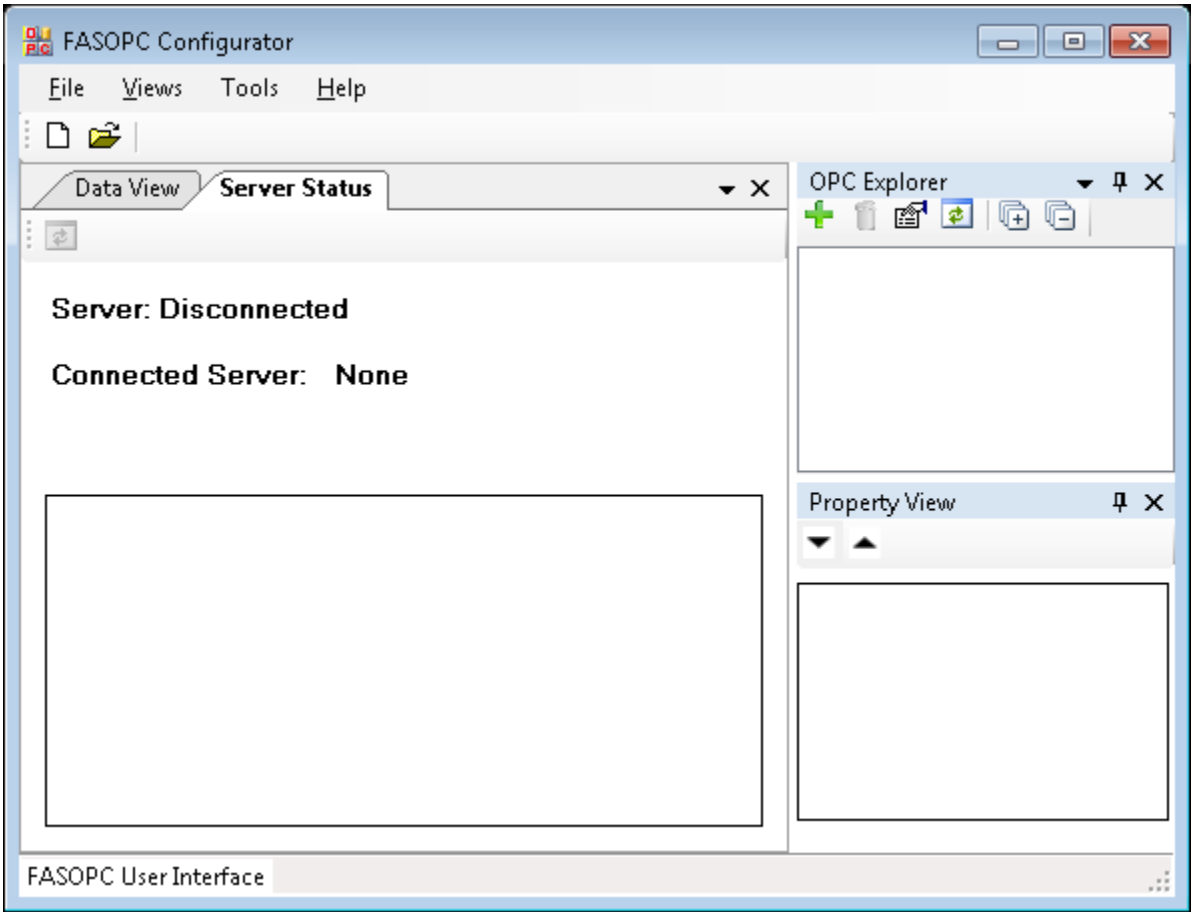
3 FASOPC Configurator

3 FASOPC Configurator

This chapter details the server configuration editor tool. The FASOPC Configurator is used to create the server point data file. This file is created with an .FS2 extension. After the file is created with the configurator, the .FS2 file must be transferred to the FASOPCServer directory folder.

This user interface simplifies the process of creating the server point data file. There are four primary views within the UI, the Data view, OPC Explorer, Property view, and the Server Status view. The views are dock able and can be arranged to the users liking by dragging them within the parent form. The Data View, Server Status, and Property View may be also float outside of the parent form.

1) **Double-Click the** "**FASOPC Configurator**" icon on the desktop.



2) **Click** "**TOOLS**" on the top menu.

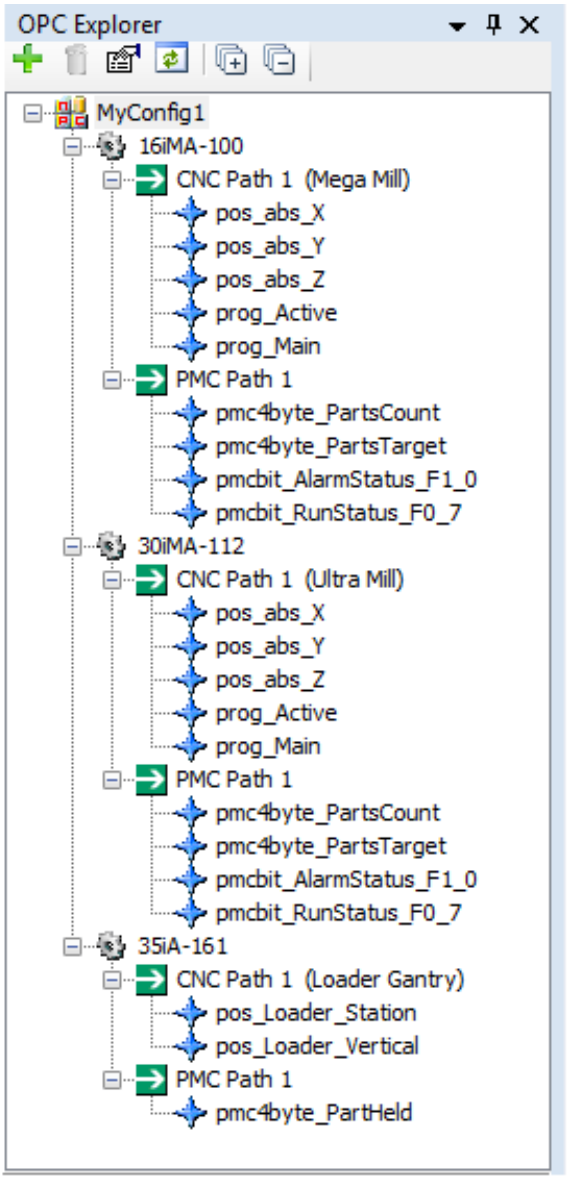
3) **Click** "**DEFAULTS**" on drop-down menu.

4) **Click** "**RESET ALL VIEWS**", to reset views to their default size and location.

3.1 OPC Explorer

The explorer view provides a tree view of the configured machines and points. This is where changes to the configuration are initiated. The tool bar at the top of the window or the menu at the top of the parent window may be used.

The hierarchy of this display is **CONFIG ⇨ MACHINE ⇨ PATH ⇨ POINT**.



3.1.1 Add Element

The function of this toolbar button is dependent on what is currently selected in the window. When the window is blank the system will assume you want to create a new configuration. If the configuration is currently selected, the system assumes you want add a new machine. If a machine is selected, the system assumes you want to add a new point for that machine.

> **NOTE**
>
> **Decimal points may not be used when creating element names.**

3.1.2 Delete Element

What will be deleted by this toolbar button is dependent on what is currently selected in the window. MACHINEs, PATHs, and POINTs may be deleted. Entire configurations may not. To delete a point, click the point to highlight it, then click the delete element tool button. A confirmation window will appear before it is actually deleted.

3.1.3 Refresh

This button initiates a manual refresh of the OPC Explorer view. If a new element has been added the view will automatically refresh.

3.1.4 Expand Tree

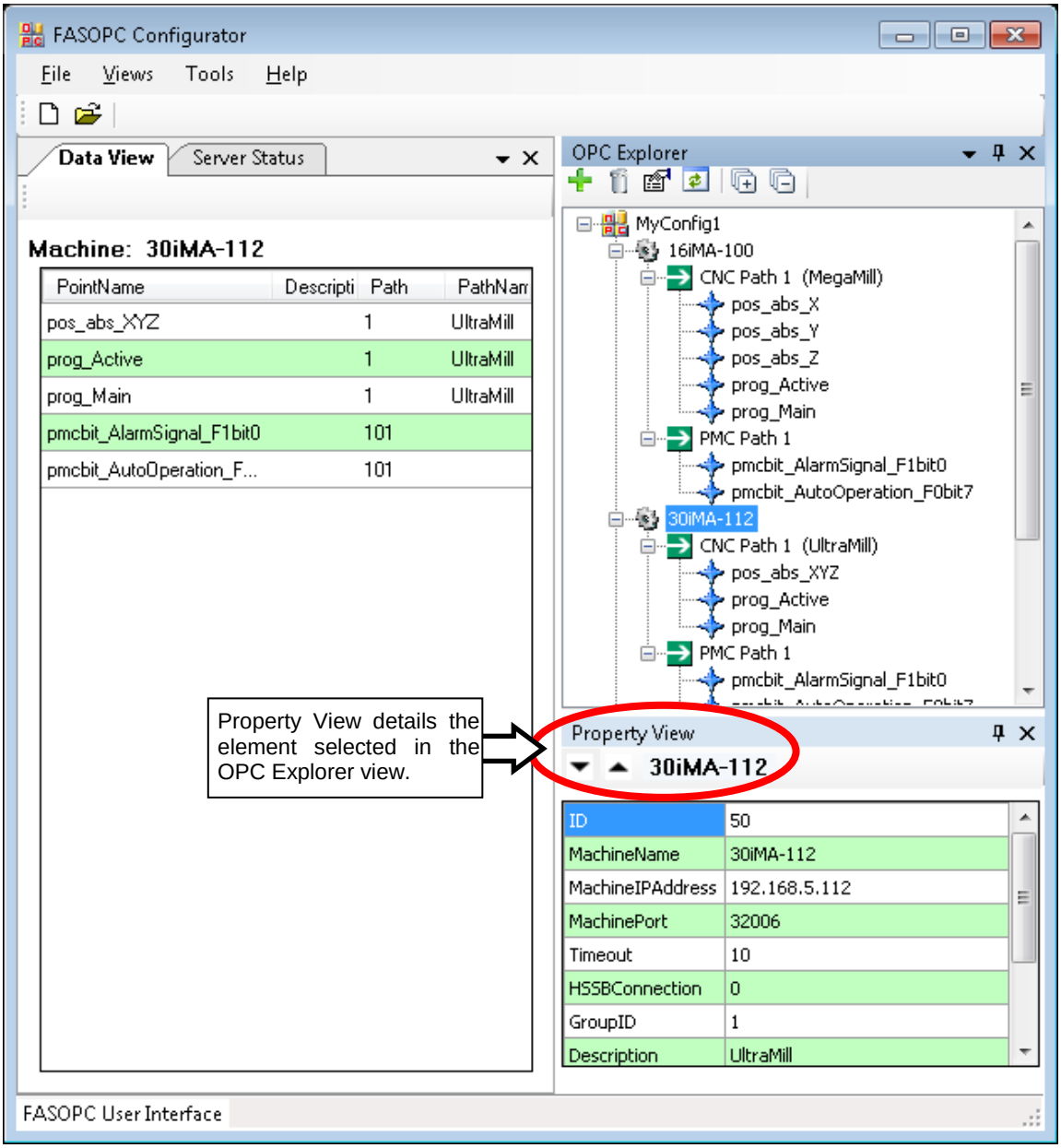
This button fully expands the tree view to expose all machines, paths, and point currently configured in the active server configuration. Clicking the button to the left of any element will expand the tree to reveal all of the related sub-elements.

3.1.5 Collapse Tree

This button fully collapses the tree view to expose only the root configuration. Clicking the button to the left of any element will collapse only of the relative sub-elements.

3.2 Property View

This window shows detail about the element that is currently selected in the OPC Explorer view.



3.2.1 Next Button

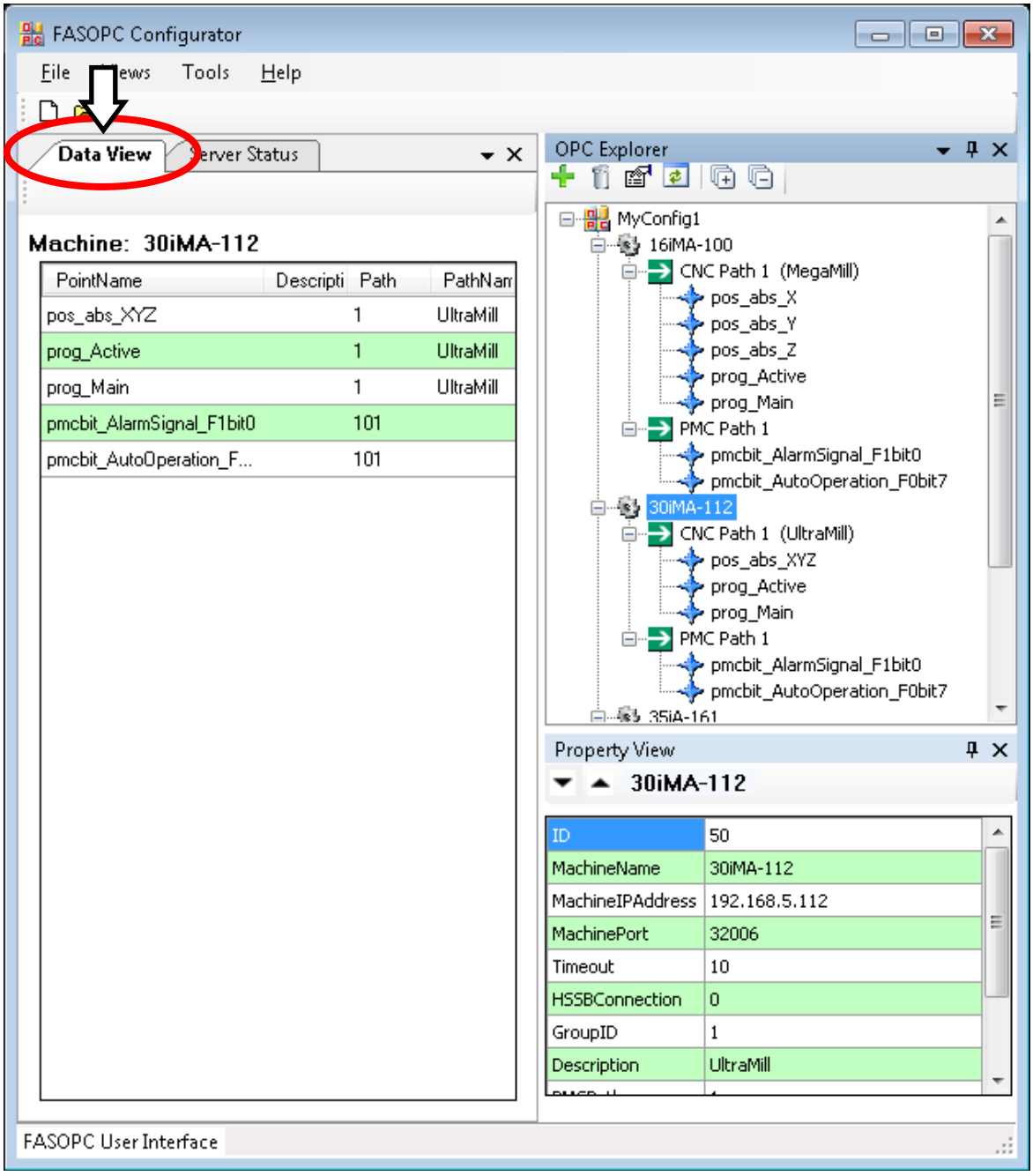
The NEXT button advances to the next item in the OPC Explorer view relative to the currently selected item. The details of the selected element are displayed in the Property View.

3.2.2 Previous Button

The PREVIOUS button advances to the previous item in the OPC Explorer view relative to the currently selected item. The details of the element are displayed in the Property View.

3.3 Data View

This window displays detail of the configured points under the configuration, CNC node, CNC Path, or PMC path. **Double-click the nodes** to view the details of the configured sub-elements.



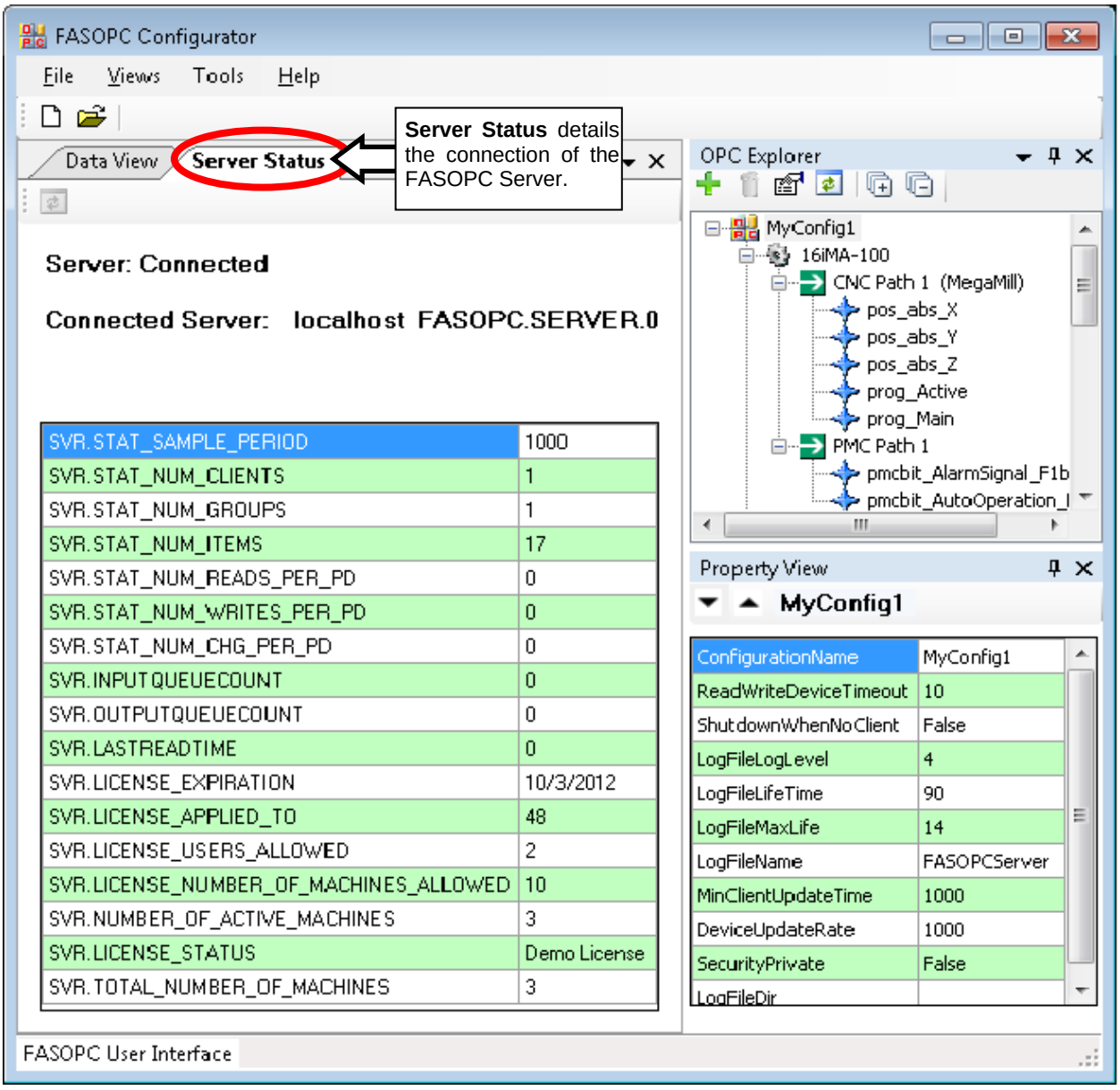
If the data view is not visible…

1) **Click** "**VIEWS**" on the top menu.

2) **Click the** "**DATA VIEW**" choice.

3.4 Server Status

The server status window provides information to the user about the operation of the FASOPC server. This information includes whether Configurator is currently connected to the server, licensing information for the FASOPC server, and status flag information from the server.



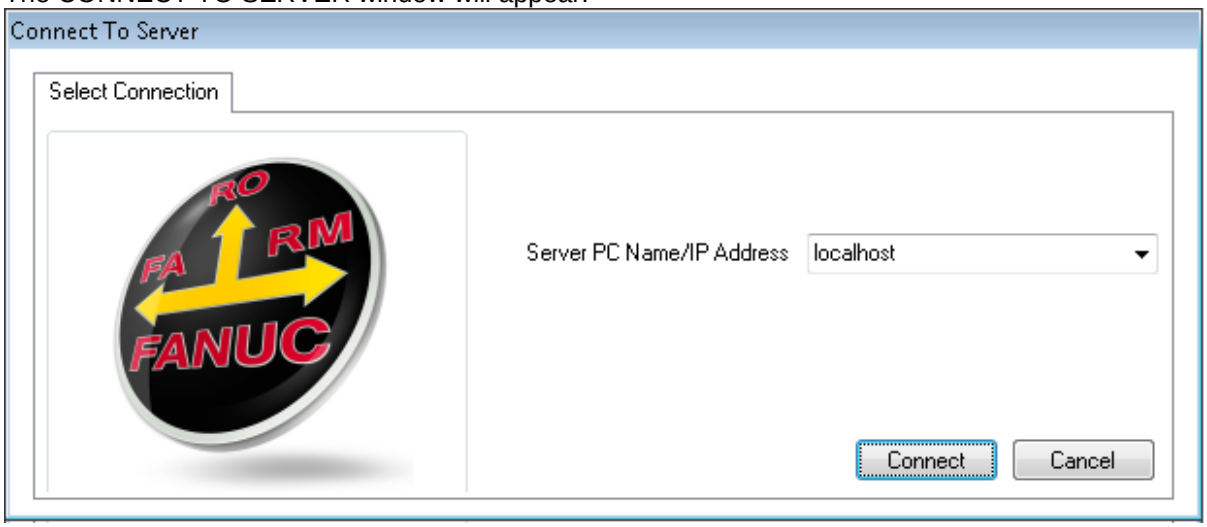
To view the server status information, the server must be connected.

1) **Click** "**TOOLS**" on the top menu.

2) **Click** "**SERVER**" on the drop-down menu.

3) **Click** "**CONNECT TO SERVER**" choice.

The CONNECT TO SERVER window will appear.



4) **Click** "**LOCAL HOST**" in the drop-down box.
LOCAL HOST means the server is the PC you are currently using, which is used in this example initially to confirm the system is functioning correctly. Afterward this setting may be changed to the server's IP or network name to connect to a remote server.

5) **Click the** "**CONNECT**" button. The message **'CONNECTION SUCCESSFUL'** will appear.

6) **Click the** "**CLOSE**" button. The Server Status tab should now show live data.

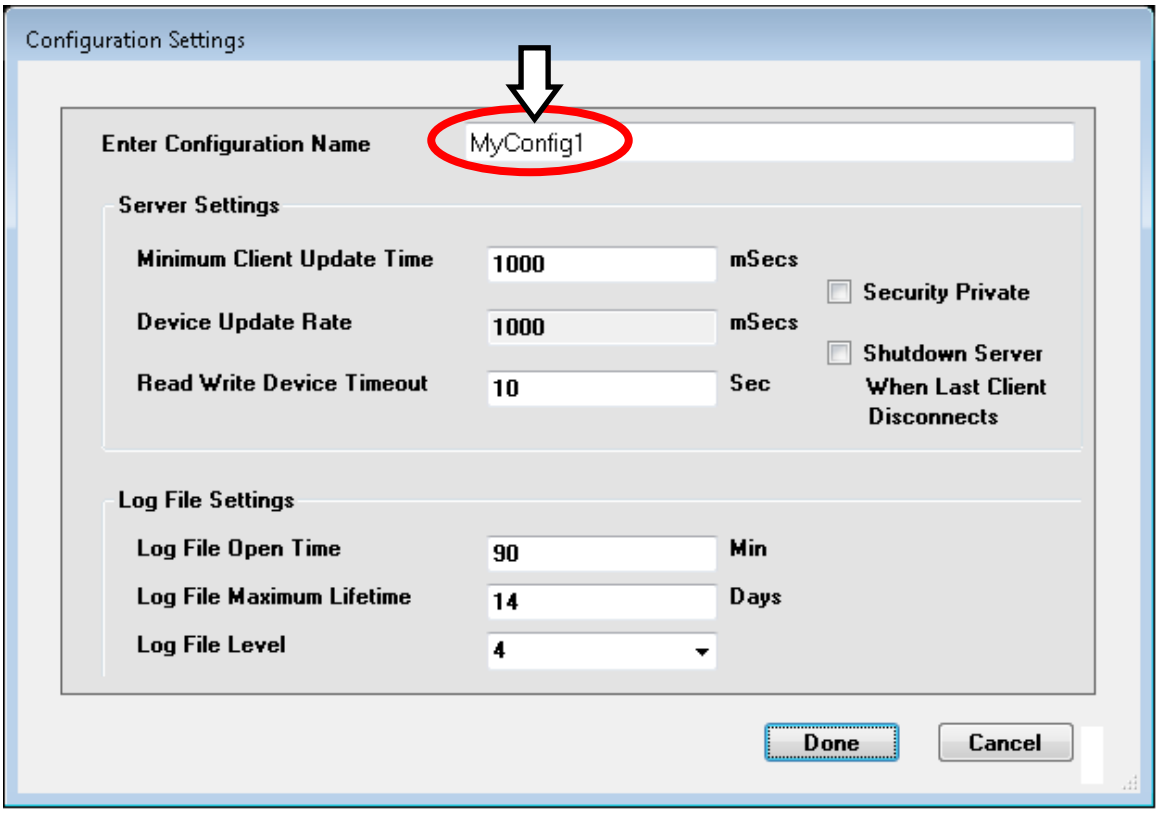
3.5 Configuration Settings

This section details the configuration settings. These settings will be used be the server to control the update rate and log file creation.

1) **Click** "**FILE**" on the top menu.

2) **Click** "**New Configuration**" on the drop-down menu.

3) **Enter <YOUR CONFIG NAME>** in the ENTER CONFIGURATION NAME field.



3.5.1 Minimum Client Update Time

The client software you choose to use will also have an update time setting. This setting is the master of the two, so if this setting is 1000mSec and the client is set to 100mSec, the client setting will be overridden to 1000mSec. This value is set in units of milliseconds; default is 1000 which equals 1 second. Setting range is 0~2,147,483,647.

3.5.2 Device Update Rate

This is how often the CNC will be polled for information. This value is set in units of milliseconds; default is 1000 which equals 1 second. For best results, use the CNC Ethernet option boards. Setting range is 0~2,147,483,647.

3.5.3 Read Write Device Timeout

This sets the maximum allowable time from when the server sends the request to the CNC until the response returns back from the CNC. If the round-trip time is greater than this setting, a CNC connection time-out occurs. This value is set in units of seconds, default is 10 seconds. Setting range is 0~32,767.

3.5.4 Log File Open Time
This sets the maximum amount of time the current server log file will be used. At the end of this period a new log file will be created and the old file will remain in the LOGS directory folder. This value is set in units of minute, default is 90 minutes. Setting range is 0~2,147,483,647.

3.5.5 Log File Maximum Lifetime
This sets how long the log file will remain in the server LOGS directory folder. This value is set in units of days, default is 14 days. Any log files that remain in the folder for more than 14 days will be automatically deleted from the folder. Setting range is 0~32,767.

3.5.6 Log File Level
This setting determines how detailed the server log messages will be. Log level 1 is the least amount of logging and is used for typical day to day operations. Log level 5 is the most detailed logging level and is used when troubleshooting a connection or server problem.

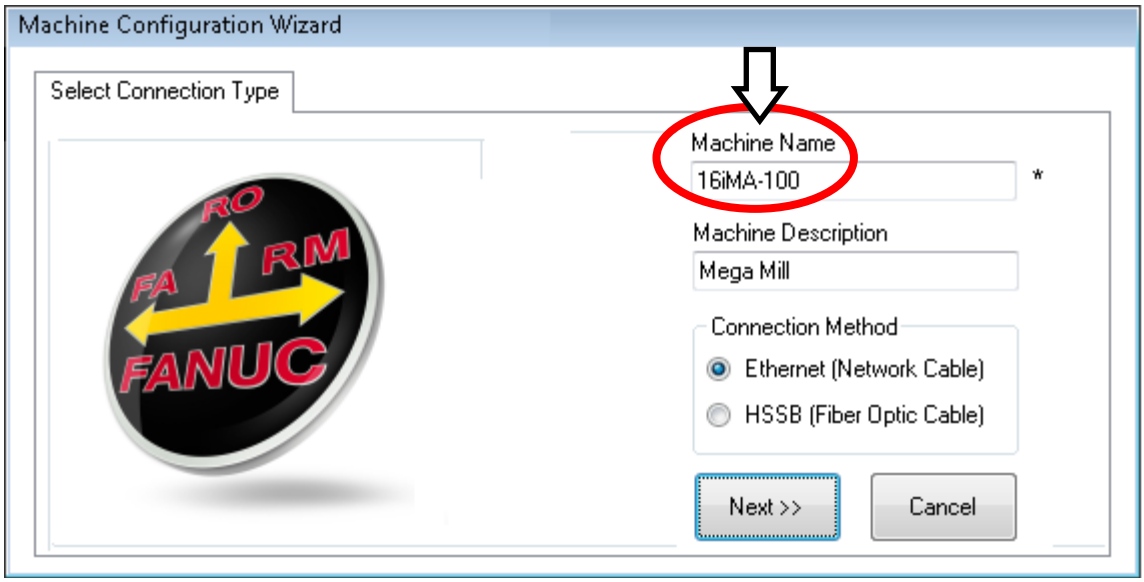
3.5.7 Security Private
This checkbox enables OPC server connection security. Default setting is OFF.

3.5.8 Shutdown When Last Client Disconnects
This checkbox flags the FASOPC server to shut down when it detects no clients are connected. Regardless of this setting, the server will automatically start when any client requests a connection.

3.6 Machine Configuration Wizard
This wizard steps through the process of adding a new machine to the configuration file.

1) **There are three ways** to invoke the machine configuration wizard…

- ✶ **On main menu – TOOLS ⇨ WIZARDS ⇨ MACHINE CONFIGURATION**
- ✶ **Explorer View – RIGHT-CLICK configuration and select ADD MACHINE**
- ✶ **Explorer View – CLICK + toolbar button with the configuration pre-selected**



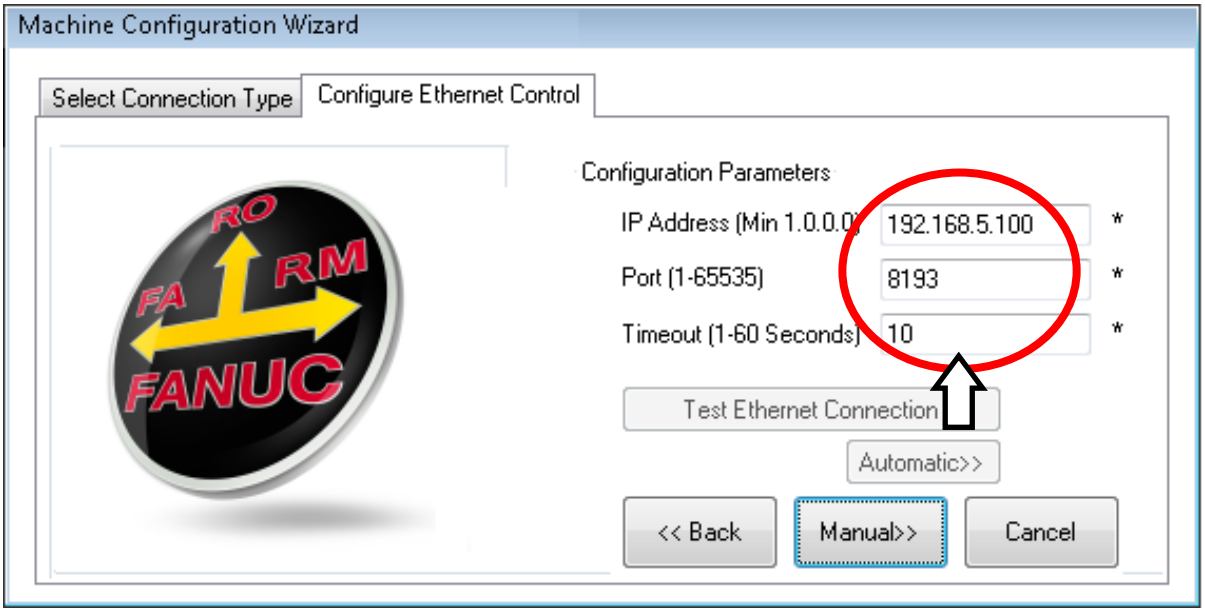
2) **Enter the** "**MACHINE NAME**", which can be any name the user wants. This will be the primary node name displayed in explorer view.

3) **Enter the** "**MACHINE DESCRIPTION**", this will appear in the property view window.

4) **Select the** "**CONNECTION METHOD**".
HSSB is a proprietary fiber optic connection which requires an option board in the CNC.
ETHERNET is a local network connection, ideally connected to the server through a switch.

5) **Click the** "**NEXT**" **button** to advance to the next tab.

The ***Configure Ethernet Control*** tab appears in the wizard.

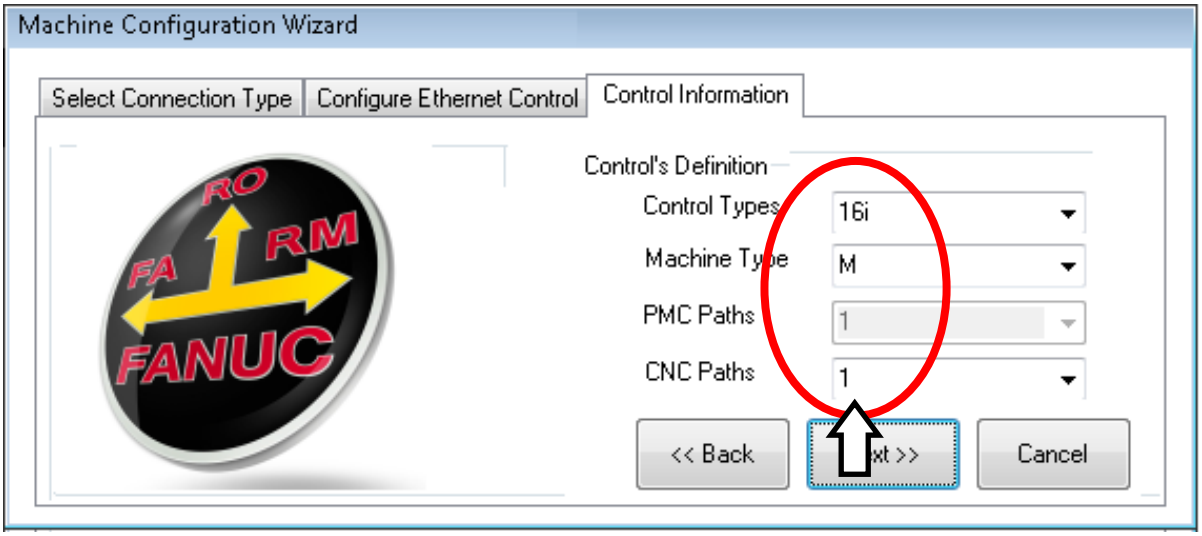


6) **Enter the** "**IP ADDRESS**" of the CNC. This is a fixed IP assigned by your network administrator. **Or enter the HSSB** "**NODE NUMBER**" if this connection method was selected. If only one CNC is connected by HSSB, node number 0 is used.

7) **Enter the** "**PORT**" **number**, the standard setting is **8193**.

8) **Enter the** "**TIMEOUT**" this is the allowable amount of inactivity, in seconds.
TEST CONNECTION and AUTOMATIC mode do not function in this beta version.

9) **Click** "**MANUAL**" to continue manual configuration of the CNC connection.

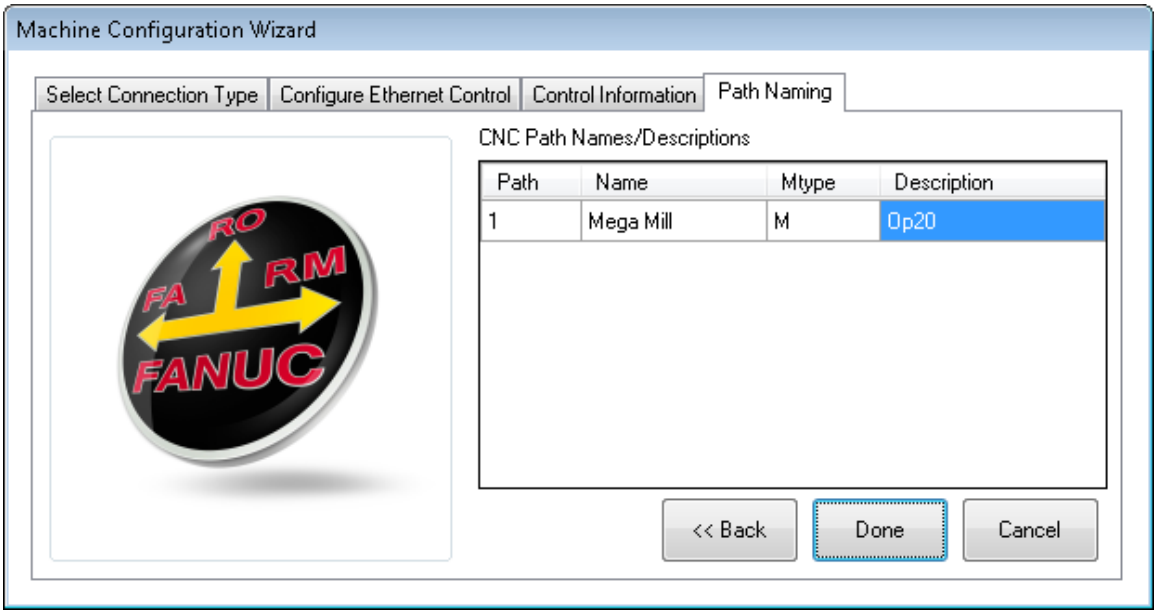


10) **Select the** "**CONTROL TYPE**", series and model in the drop-down box.

11) **Select the** "**PMC PATHS**" **number**, most controls only have one. The 30*i* series controllers have options for three or up to five individual PMC ladders.

12) **Select the** "**CNC PATHS**" **number**, most controls only have one. This is the number of G-code programs the control is capable of processing simultaneously. The 30*i* series controls are capable of up to ten simultaneous paths; older series may have up to three paths.

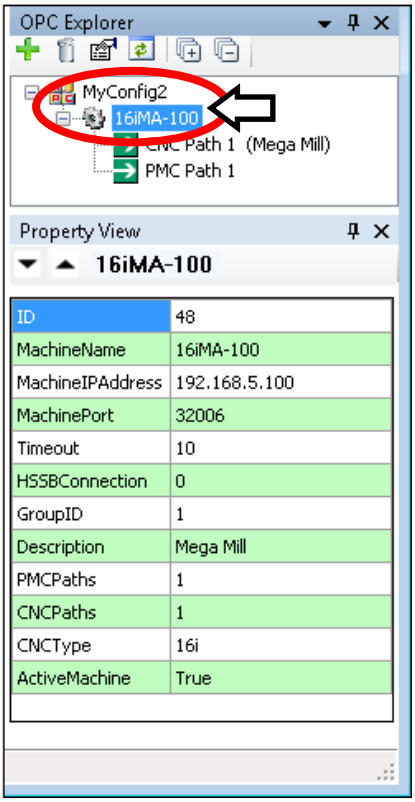
13) **Click the** "**NEXT**" button.
The ***Path Naming*** tab appears in the wizard.



14) **Enter MACHINE DESIGNATOR in the** "**NAME**" field of this CNC path. This name will appear to the right of the CNC path node in parenthesis. The description text will appears in property view.

15) **Click** "**DONE**" to complete the wizard.

The added machine now appears in ***OPC Explorer*** view, and if selected by a mouse click the details that have just been entered appear in the ***Property View*.**



16) **Click** "**16iMA-100**" in explorer.
Notice the property view shows the details entered.

17) **Right-Click** "**16iMA-100**" in explorer.

18) **Select** "**EDIT 16iMA-100**" on the pop-up menu.
This will start the wizard again so you can make changes to the machine configuration if desired.

3.7 Point Configuration Wizard

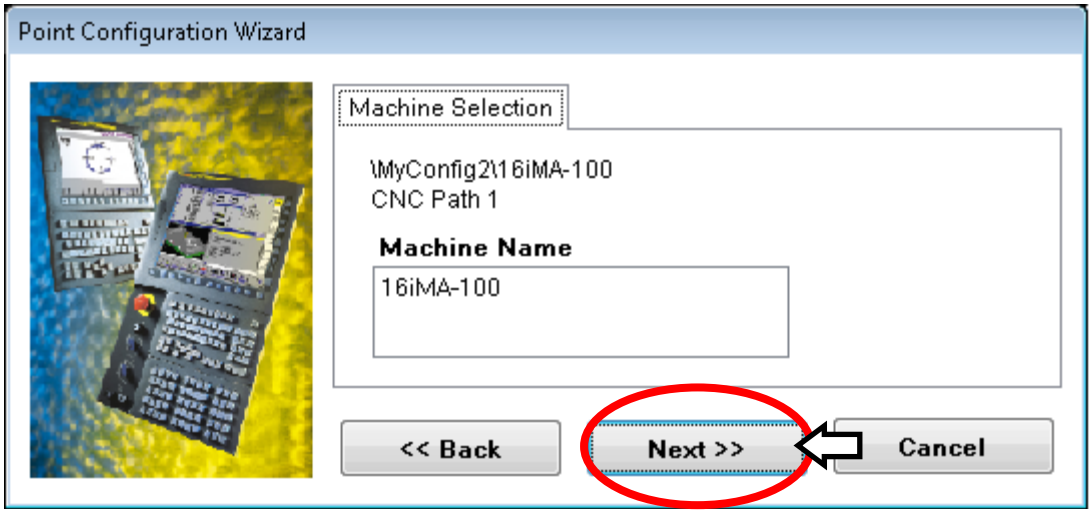
The point configuration wizard steps through the process of adding a CNC or PMC data point to the server configuration file. After choosing a point type, the wizard will step you through the process of entering all the properties required to define that point.

3.7.1 CNC Position Point

The CNC position data can be read by the server. The MACHINE, RELATIVE, ABSOLUTE, and DIST TO GO position registers are accessible.

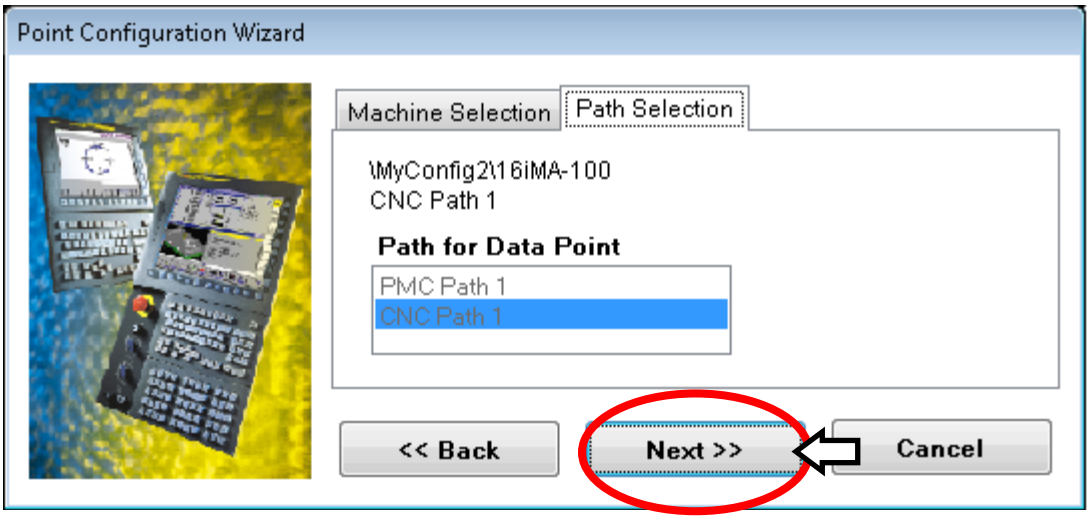
1) **There are three ways** to invoke the point configuration wizard…

- ✶ **On main menu – TOOLS ⇨ WIZARDS ⇨ POINT CONFIGURATION**
- ✶ **Explorer View – RIGHT-CLICK CNC Path1 and select ADD POINT**
- ✶ **Explorer View – CLICK + toolbar button with the machine pre-selected**

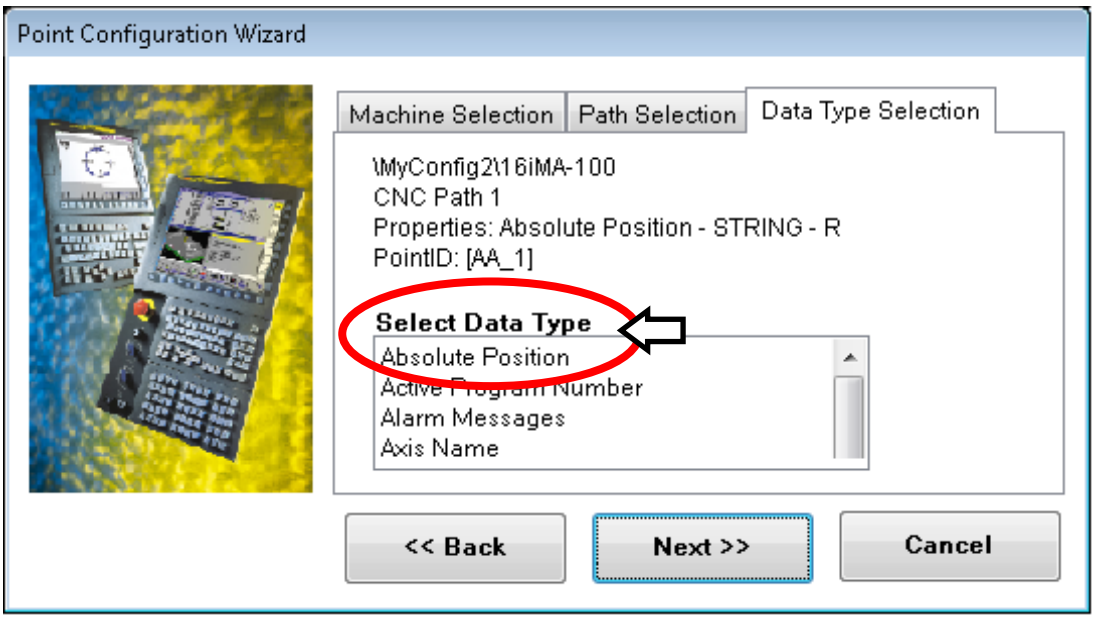


2) **Click the** "**NEXT**" button.

3) **Click the** "**NEXT**" button, **CNC PATH1** should be preselected in the PATH list box.

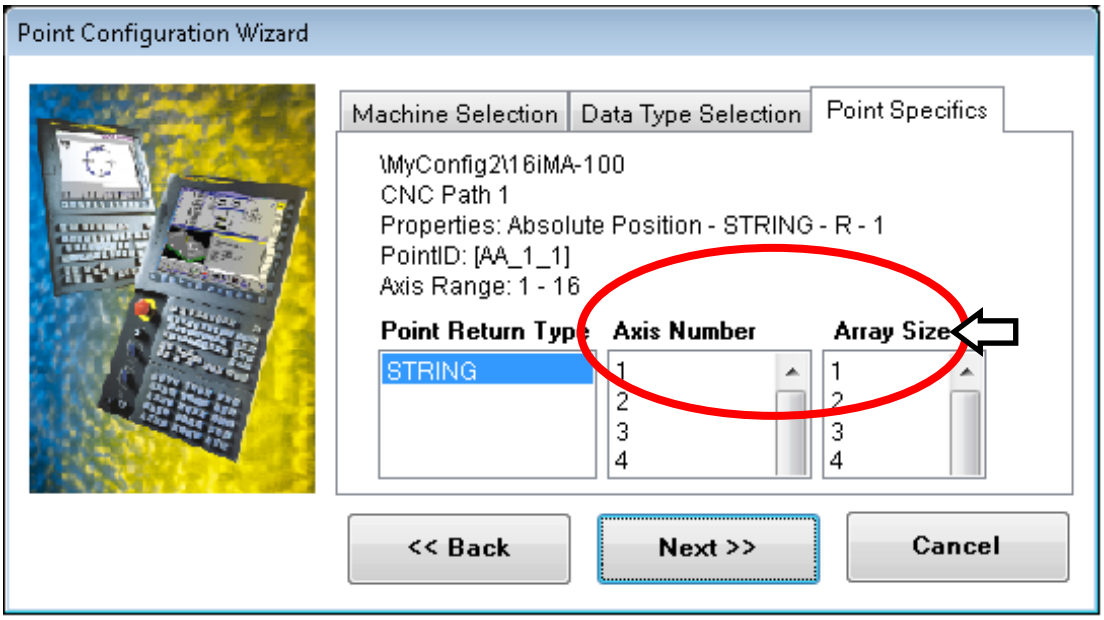


4) **Select** "**ABSOLUTE POSITION**" in the SELECT DATA TYPE list box.



5) **Click the** "**NEXT**" button.

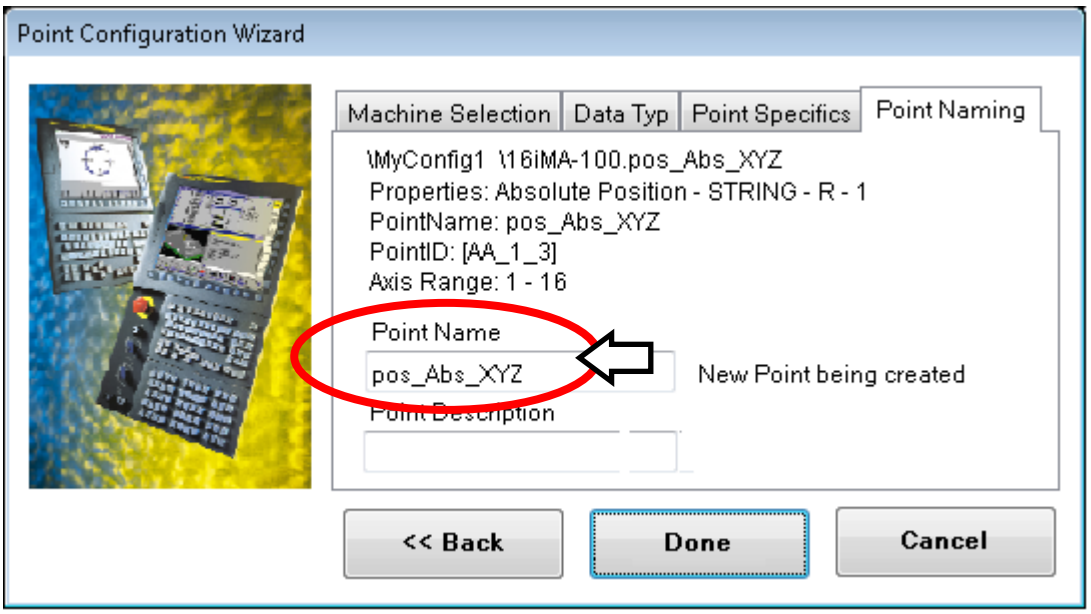
The ***Point Specifics*** tab appears in the wizard.



6) **Select the** "**AXIS NUMBER=1**" and "**ARRAY SIZE=3**" values.
The array size lets you view several axis absolute positions by using only one data point.

7) **Click the** "**NEXT**" button.

The ***Point Naming*** tab appears in the wizard.

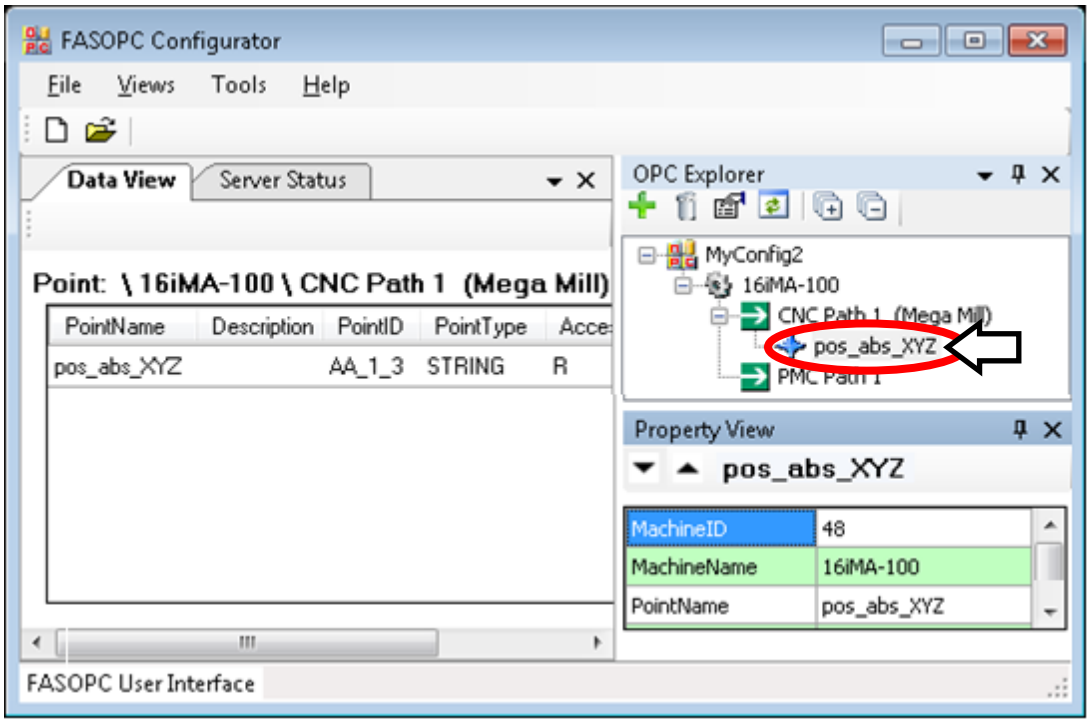


8) **Enter** "**enter the point name**", for example: POS_ABS_XYZ.

> **NOTE**
> **Decimal points may not be used when creating point names.**

9) **Click the** "**DONE**" button, to complete the wizard.

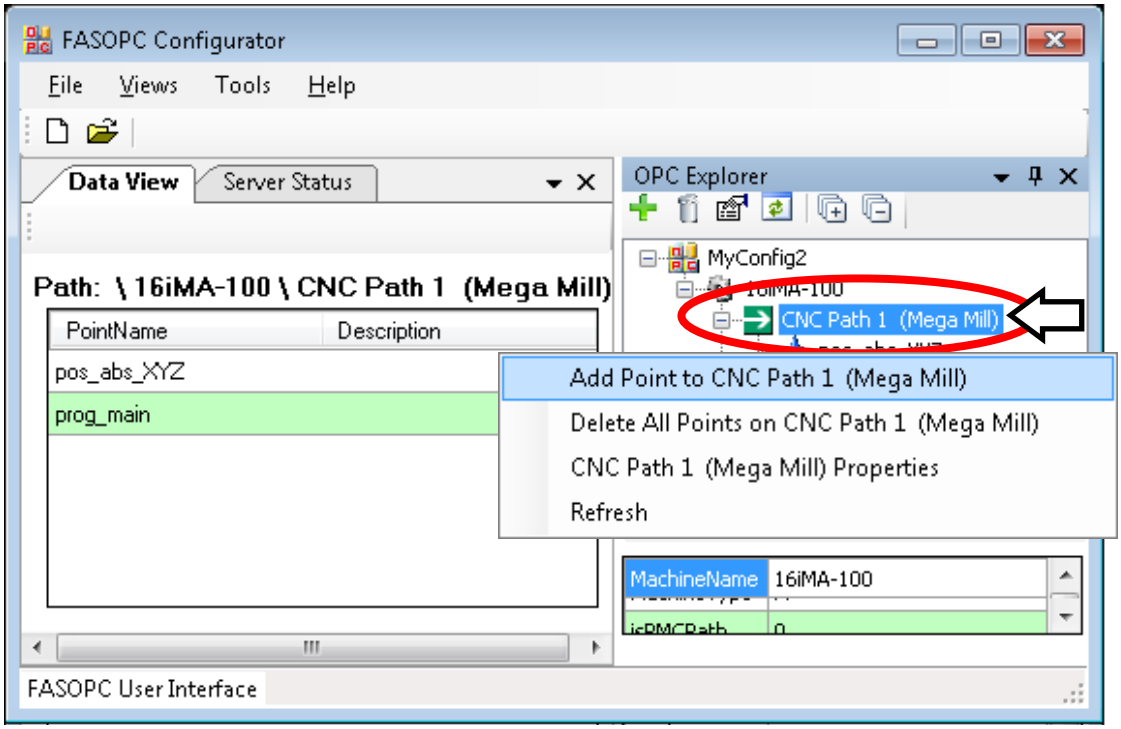
The point should now appear in the OPC Explorer view.



3.7.2 CNC Program Number

The main program and current program may be configured as read points. The MAIN program is the primary program being executed. The CURRENT program is the sub-program that is currently executing which was called from the MAIN program.

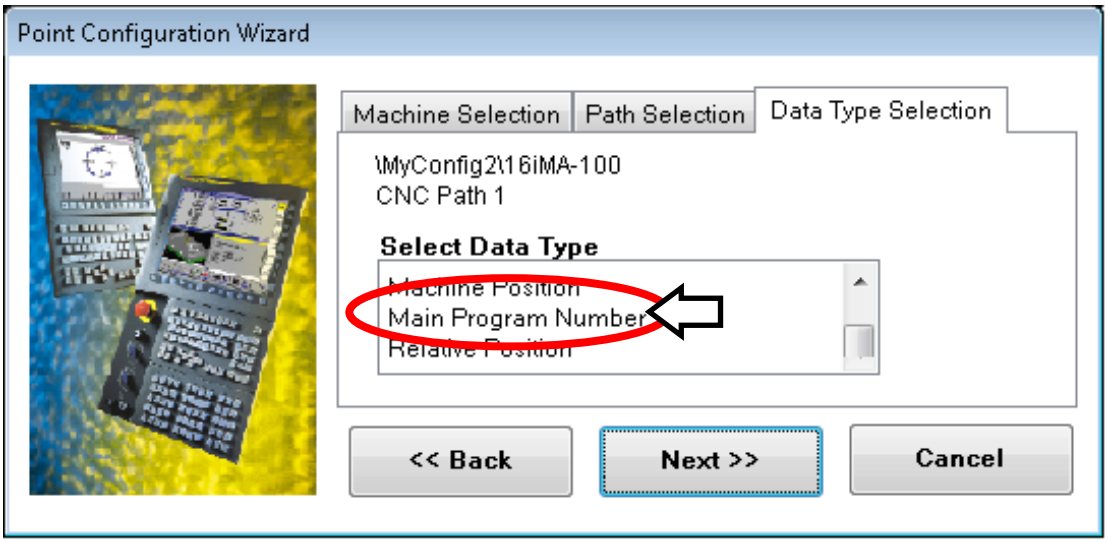
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

3) **Click** the "**NEXT**" button, the path selection tab will appear.

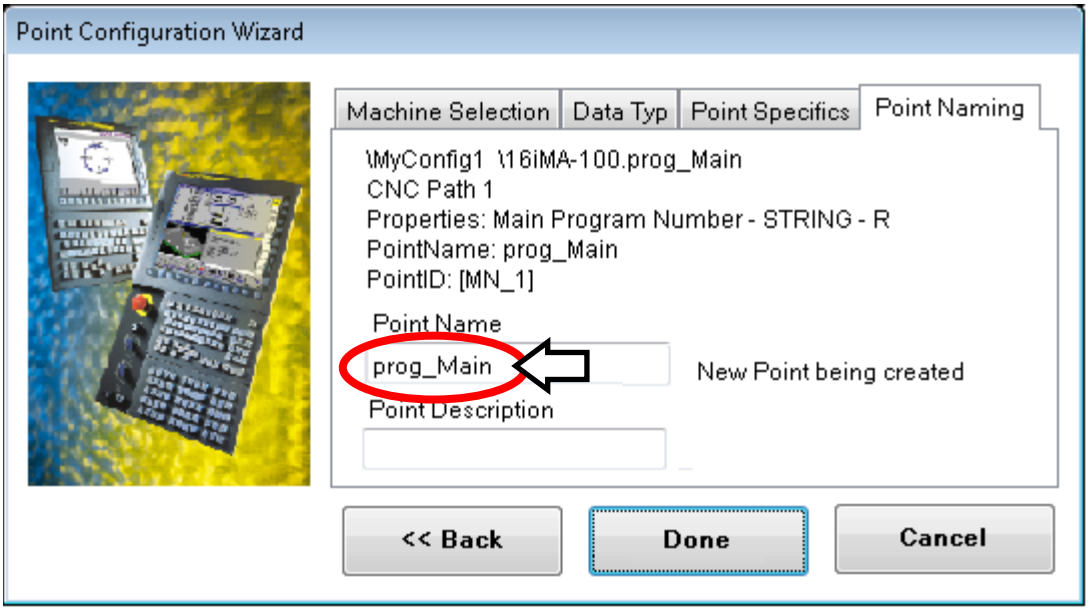
4) **Click** the "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**MAIN PROGRAM NUMBER**" in the data type list box.

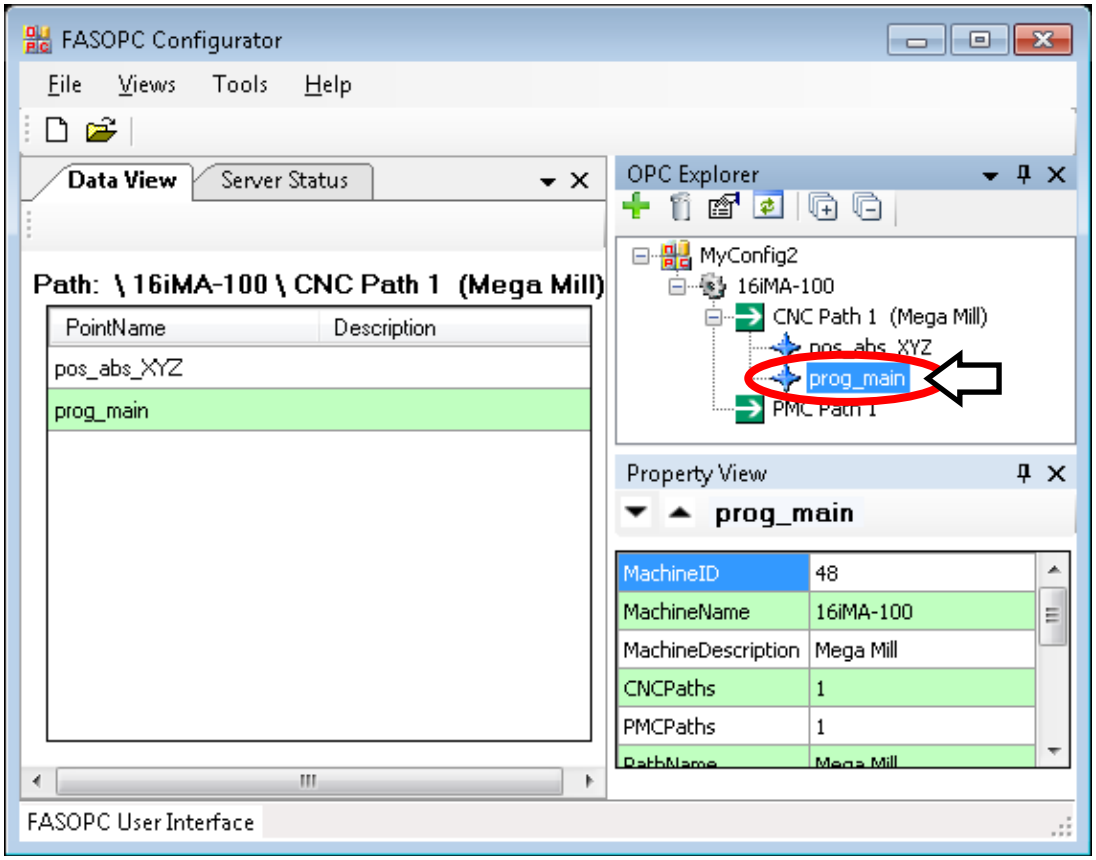
6) **Click the** "**NEXT**" button, the point specifics tab will appear.

7) **Click** the "**NEXT**" button, the point naming tab will appear.



8) **Enter** "**enter the point name**", for example: PROG_MAIN.

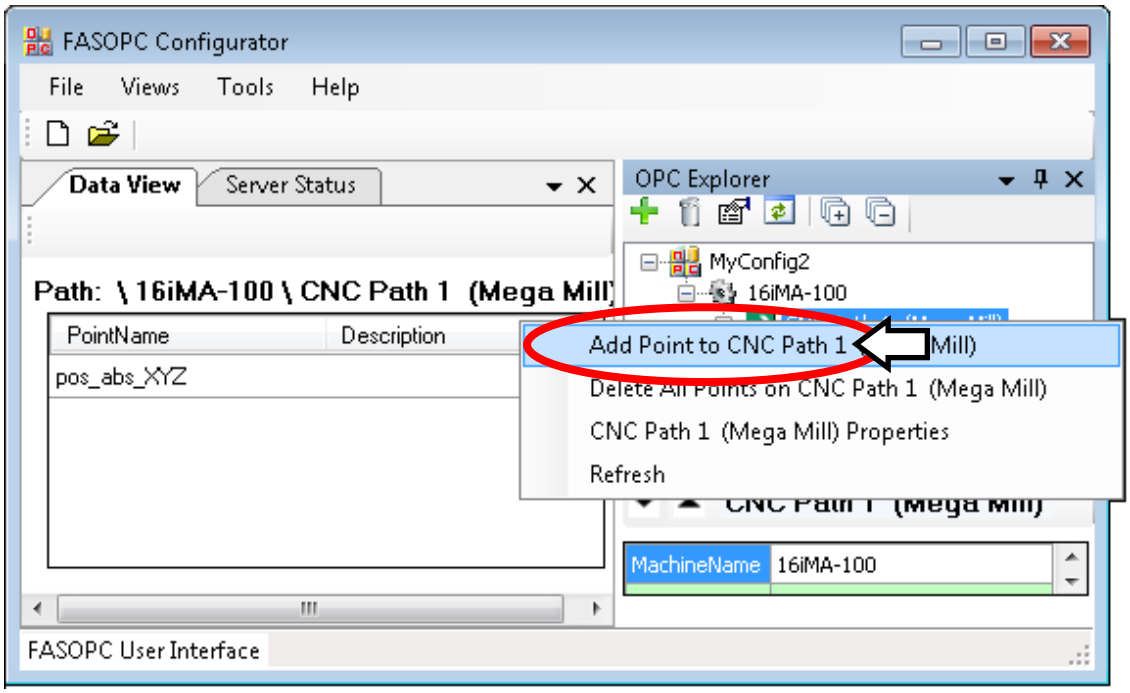
9) **Click** the "**DONE**" button. The new point will appear in OPC Explorer view.



3.7.3 CNC Alarms

The CNC alarm numbers and messages may be read as points. An array of messages may also be selected to read multiple messages if desired.

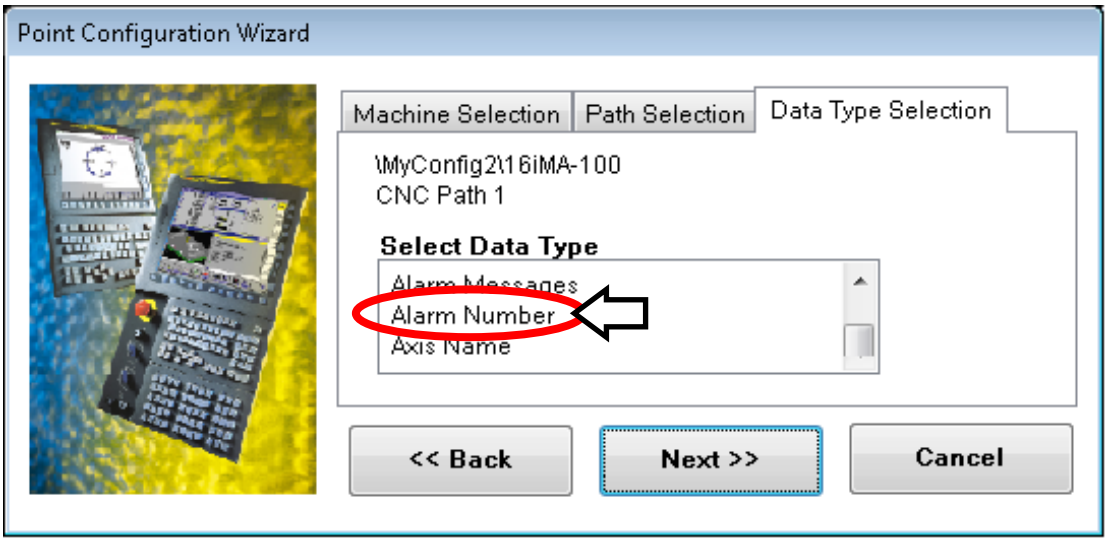
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

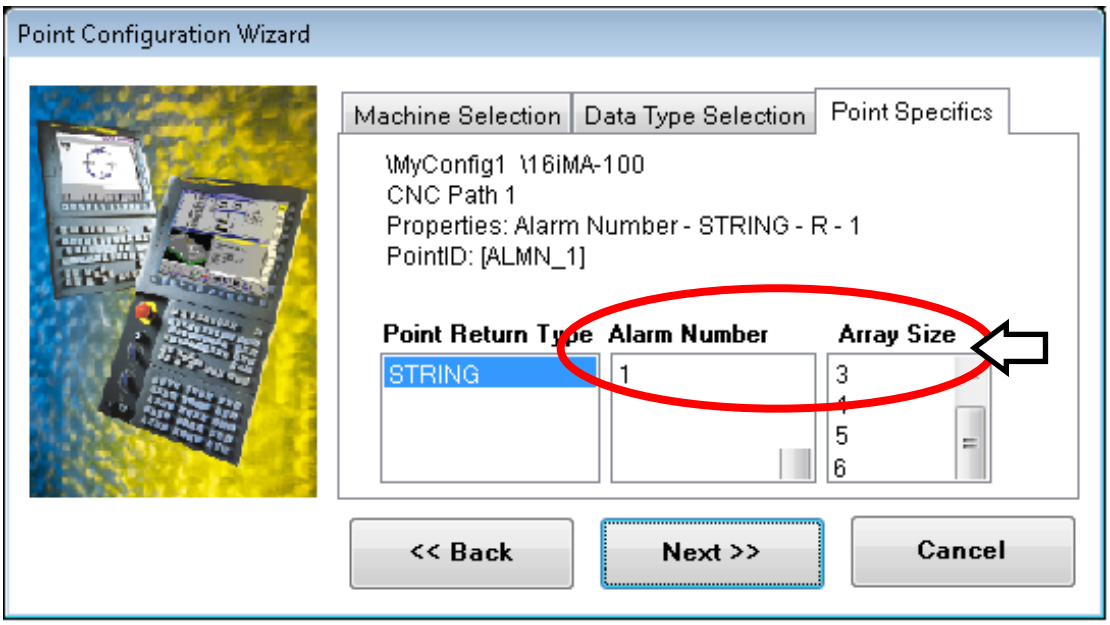
3) **Click** the "**NEXT**" button, the path selection tab will appear.

4) **Click** the "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**ALARM NUMBER**" in the list box.

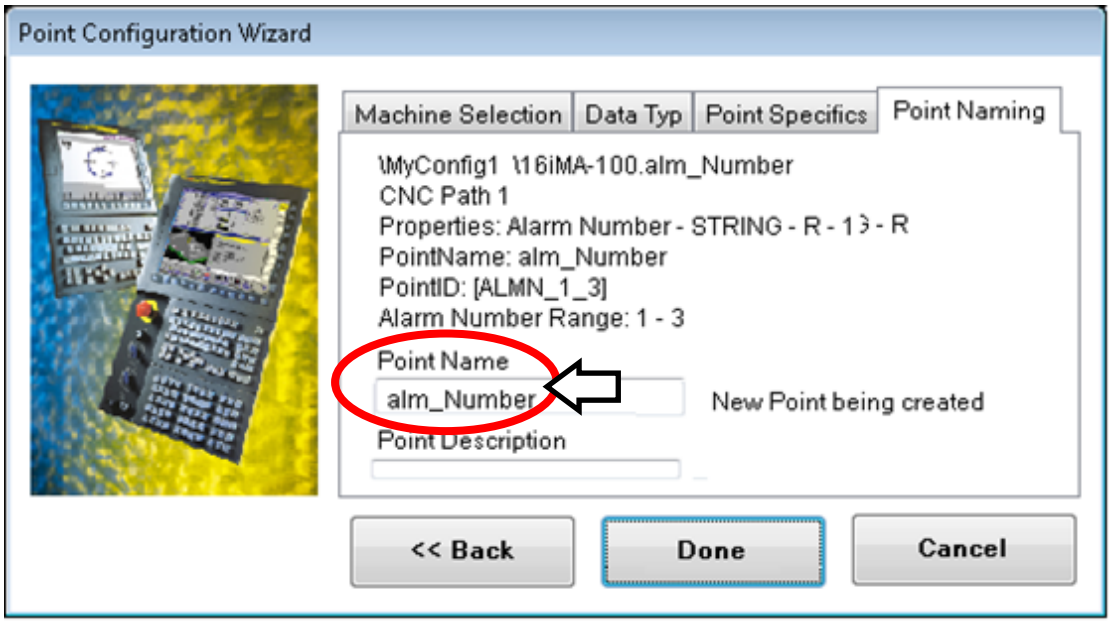
6) Click the "**NEXT**" button, the point specifics tab will appear.



7) **Select** "**ALARM NUMBER=1**" and "**ARRAY SIZE=3**" values.
With array size 3 selected, this point will display up to three CNC alarms simultaneously. If array size is set to 1 only the current alarm of highest priority will be displayed.

8) **Click the** "**NEXT**" button, the point naming tab will appear.

9) **Enter** "**enter the point name**", for example: ALM_NUMBER.

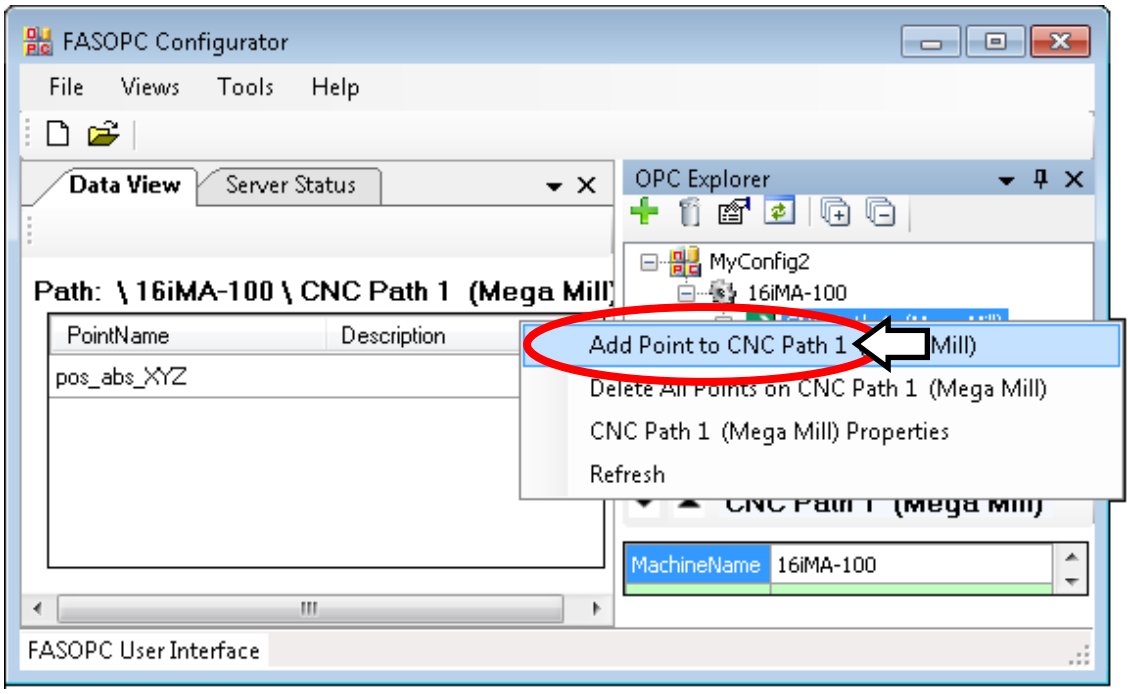


10) **Click the** "**DONE**" button. The new point will appear in OPC Explorer view.

3.7.4 CNC System Data

The CNC system details can be read. This includes CNC series (30*i*, 31*i*, or 32*i*), CNC type (M or T), and axis count per path.

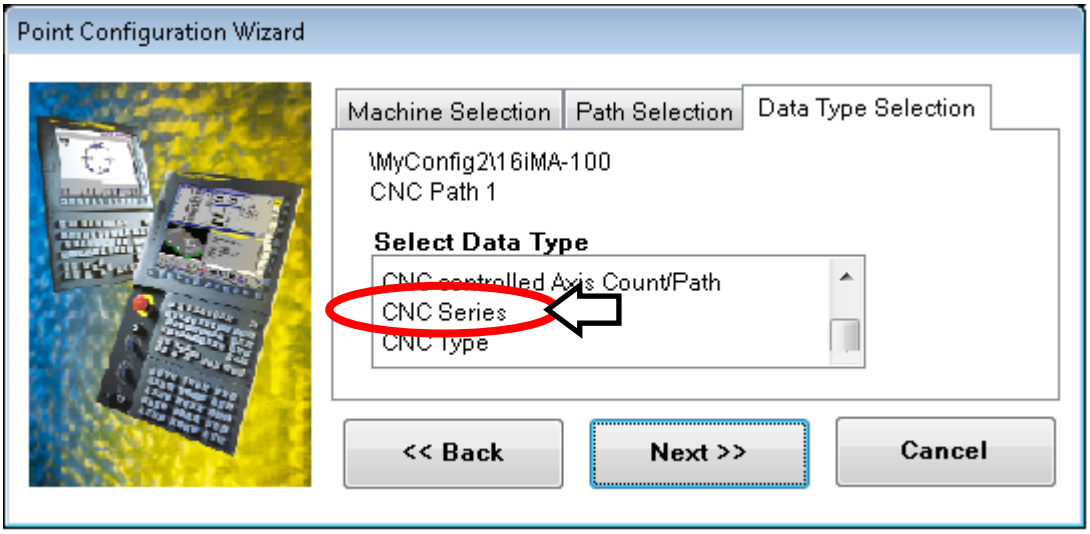
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.

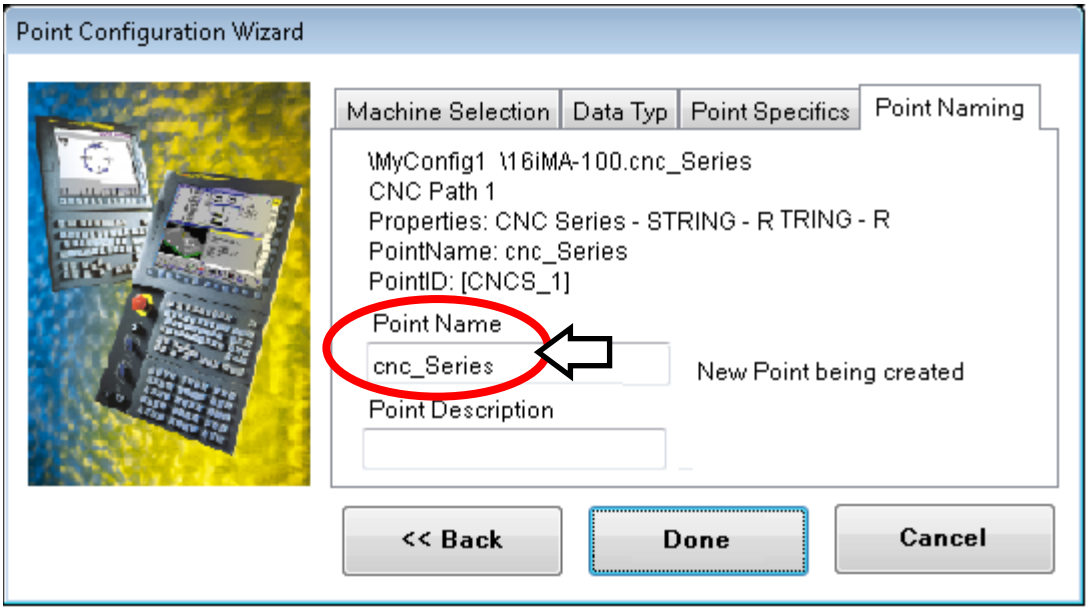


11) **Select** "**CNC SERIES**" in the list box.

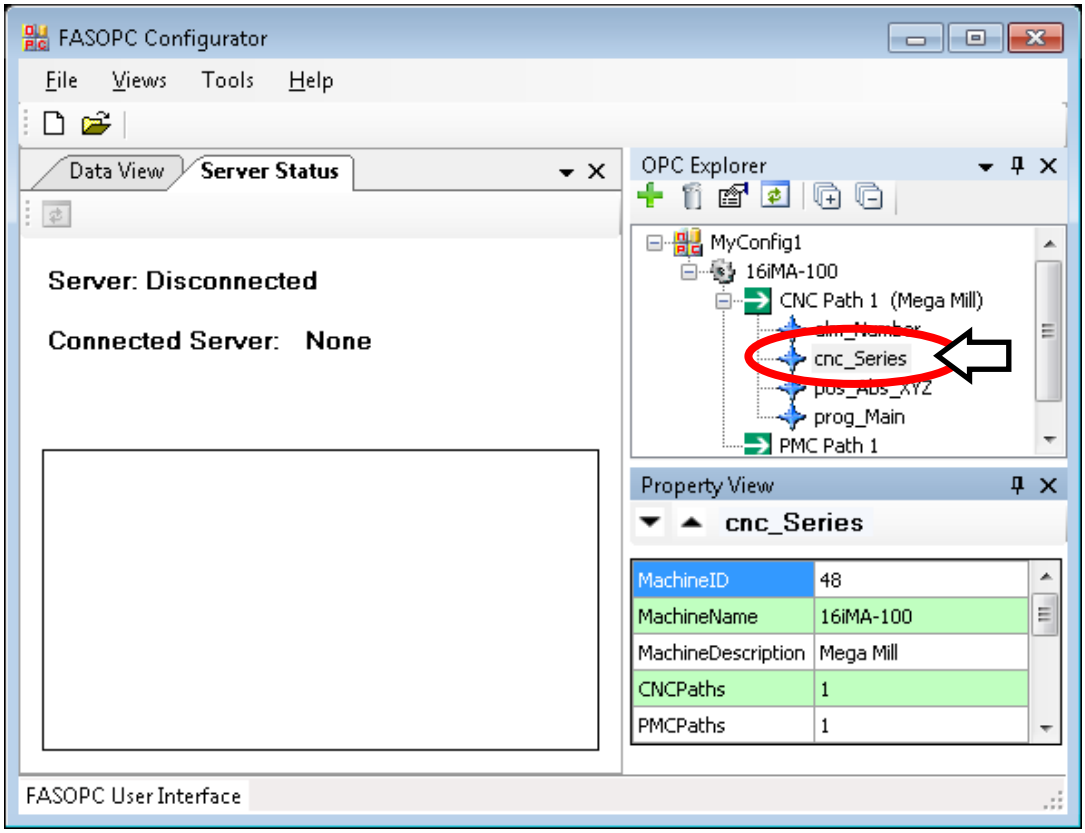
12) **Click the** "**NEXT**" button, the point specifics tab will appear.

13) **Click the** "**NEXT**" button, the point naming tab will appear.

14) **Enter** "**enter the point name**", for example: CNC_SERIES.



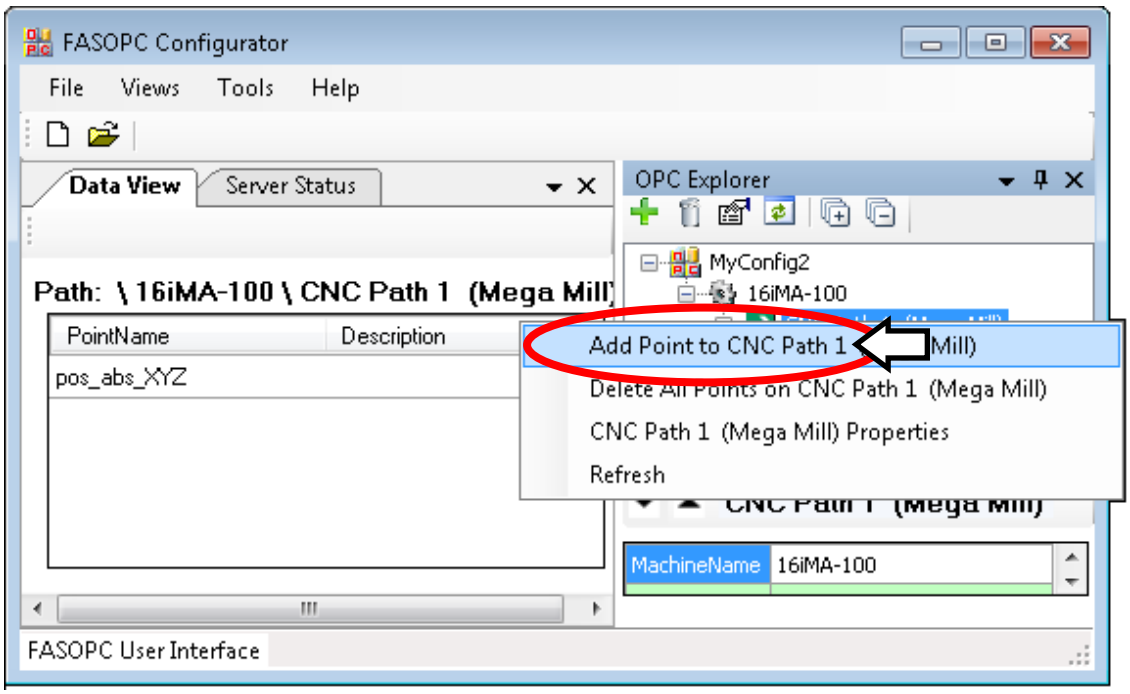
15) **Click** the "**DONE**" button. The new point will appear in OPC Explorer view.



3.7.5 CNC Macro Variables

Local and common variables may be read and written using the client software.

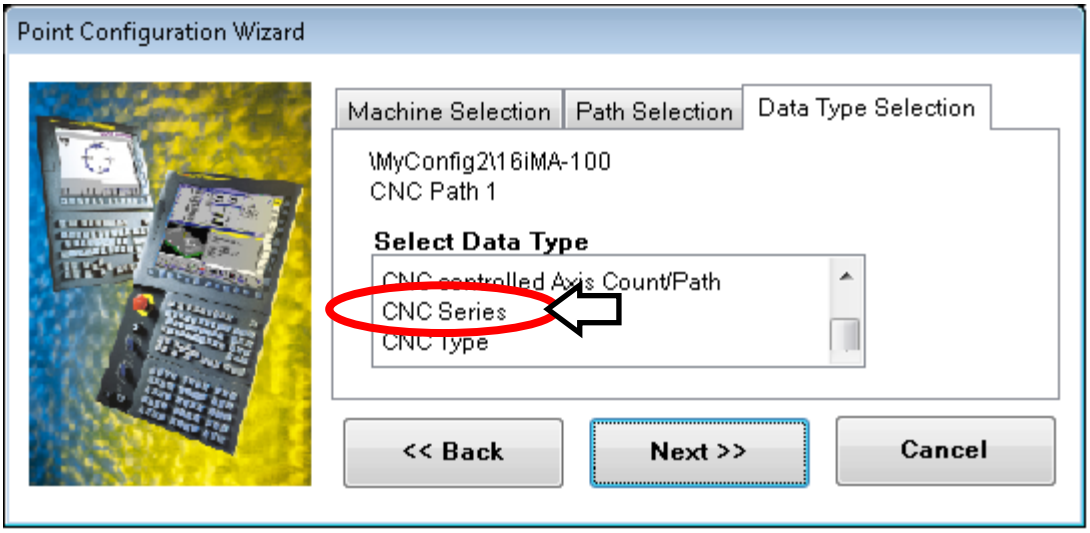
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.

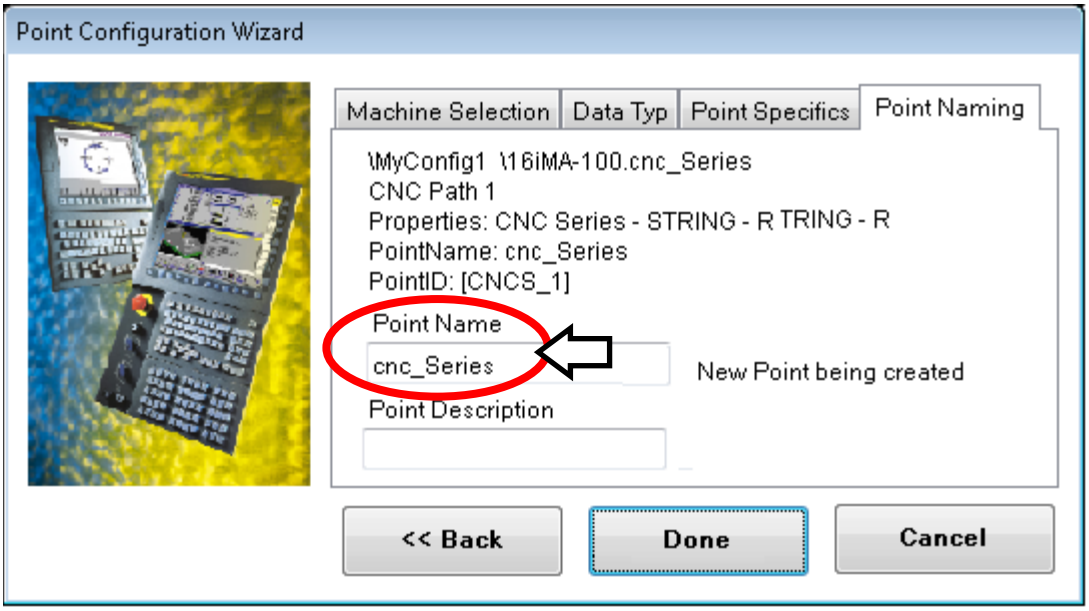


5) **Select** "**CNC SERIES**" in the list box.

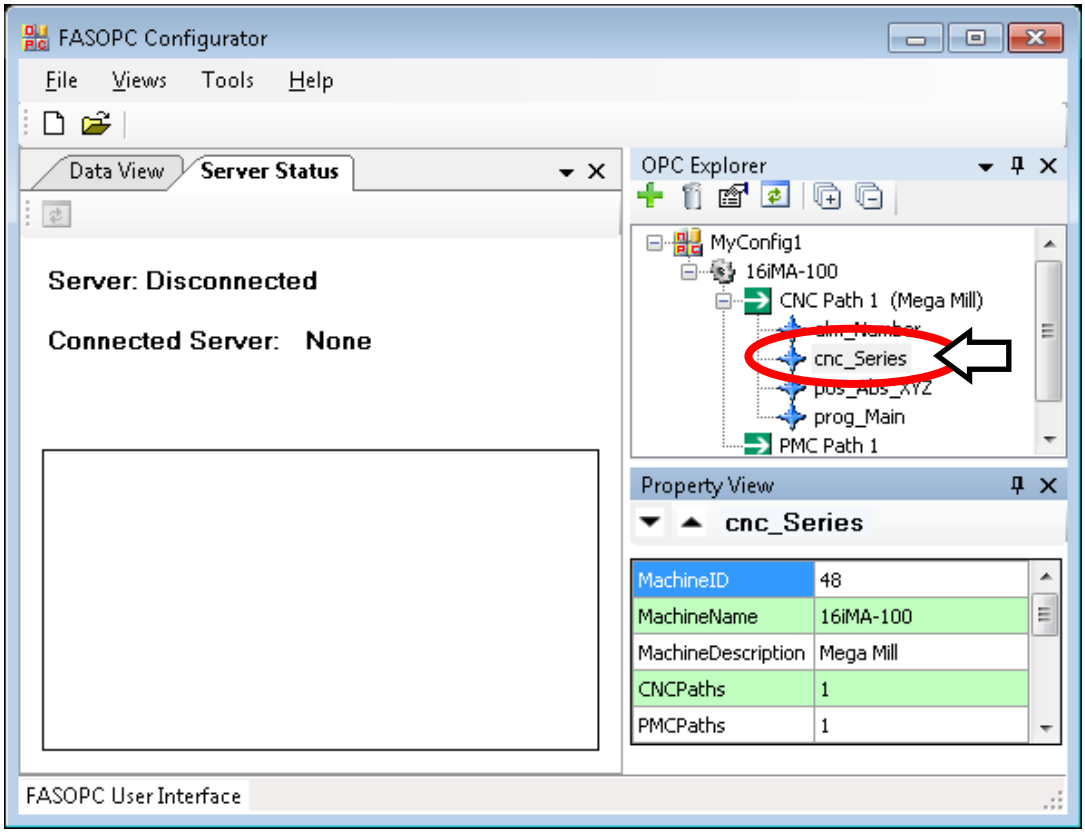
6) **Click the** "**NEXT**" button, the point specifics tab will appear.

7) **Click the** "**NEXT**" button, the point naming tab will appear.

8) **Enter** "**enter the point name**", for example: CNC_SERIES.



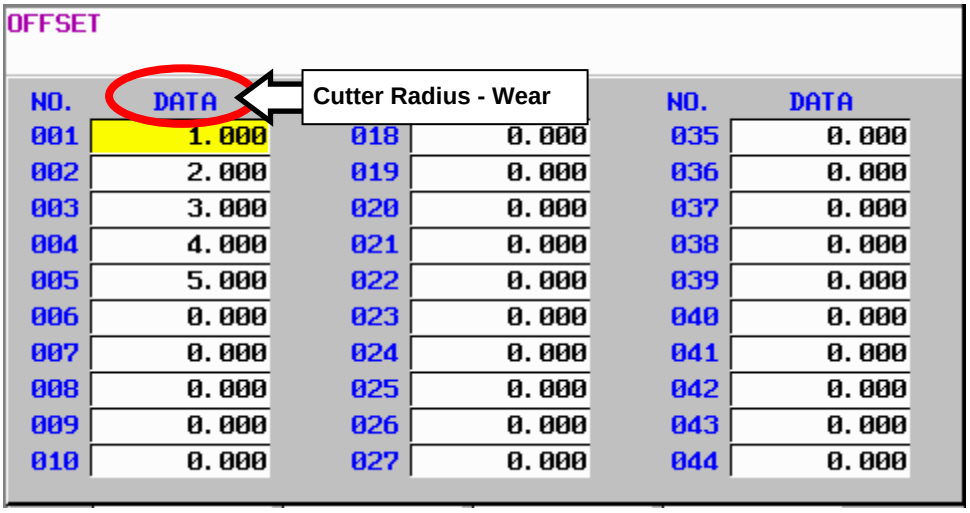
9) **Click the** "**DONE**" button. The new point will appear in OPC Explorer view.



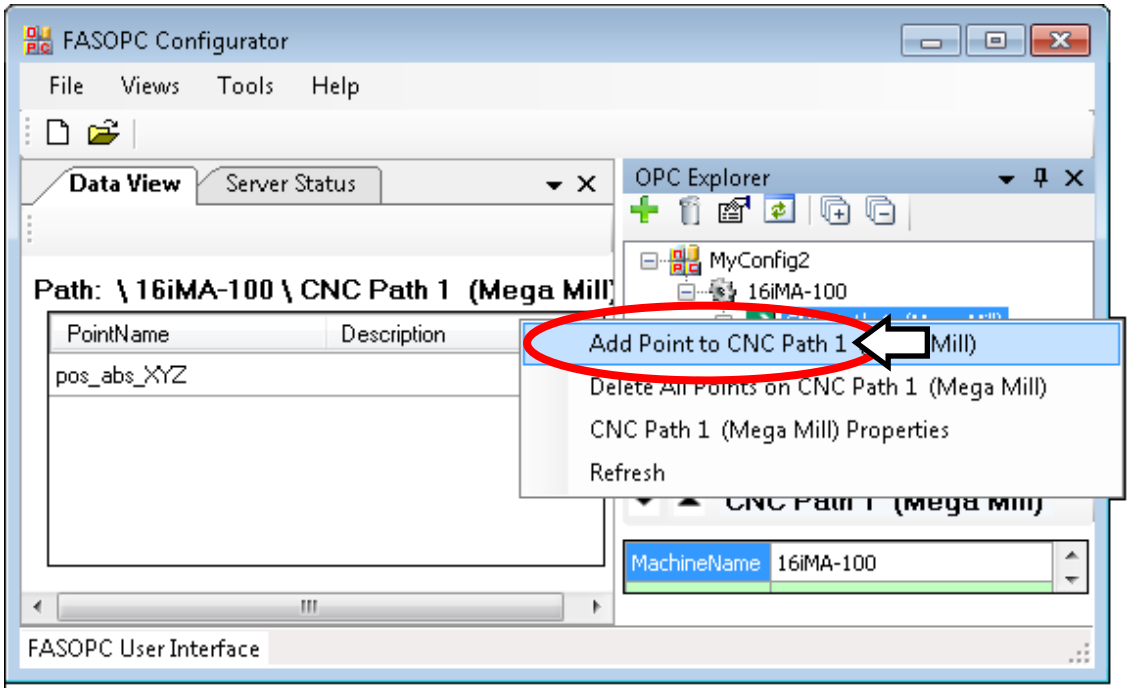
3.7.6 CNC Offset Memory A

The CNC tool offsets may be read or written through the client software. The mill control has three memory options A, B, and C. The memory A option has a single column labeled DATA.

By pressing the OFFSET button on the MDI keypad, then select the OFFSET soft key the tool offset screen can be seen.



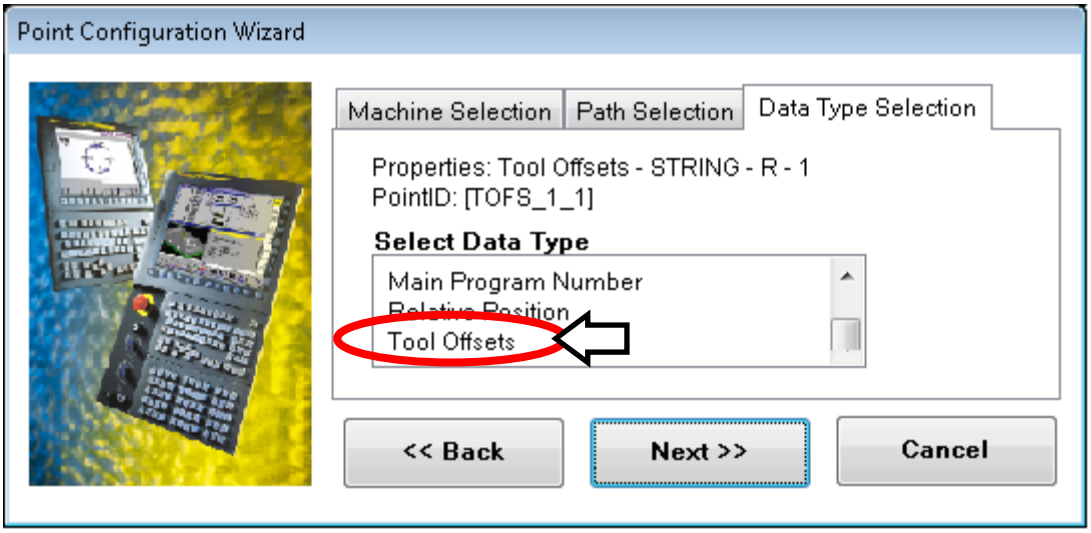
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

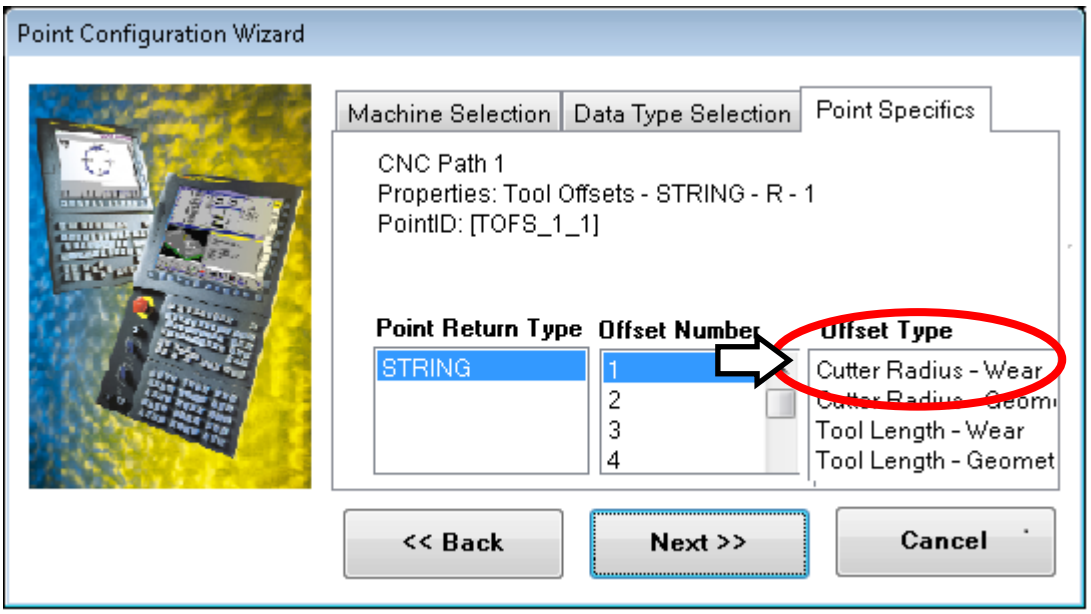
3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**TOOL OFFSETS**" in the list box.

6) **Click the** "**NEXT**" button, the point specifics tab will appear.



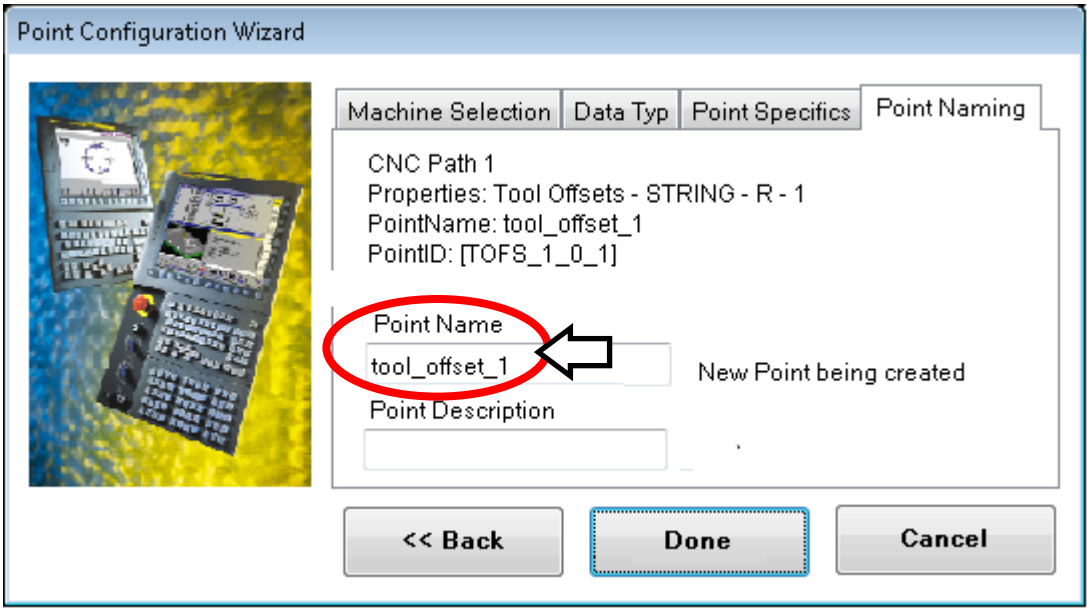
7) **Select** "**CUTTER RADIUS - WEAR**" in the offset type field.

8) **Click the** "**NEXT**" button, the point naming tab will appear.

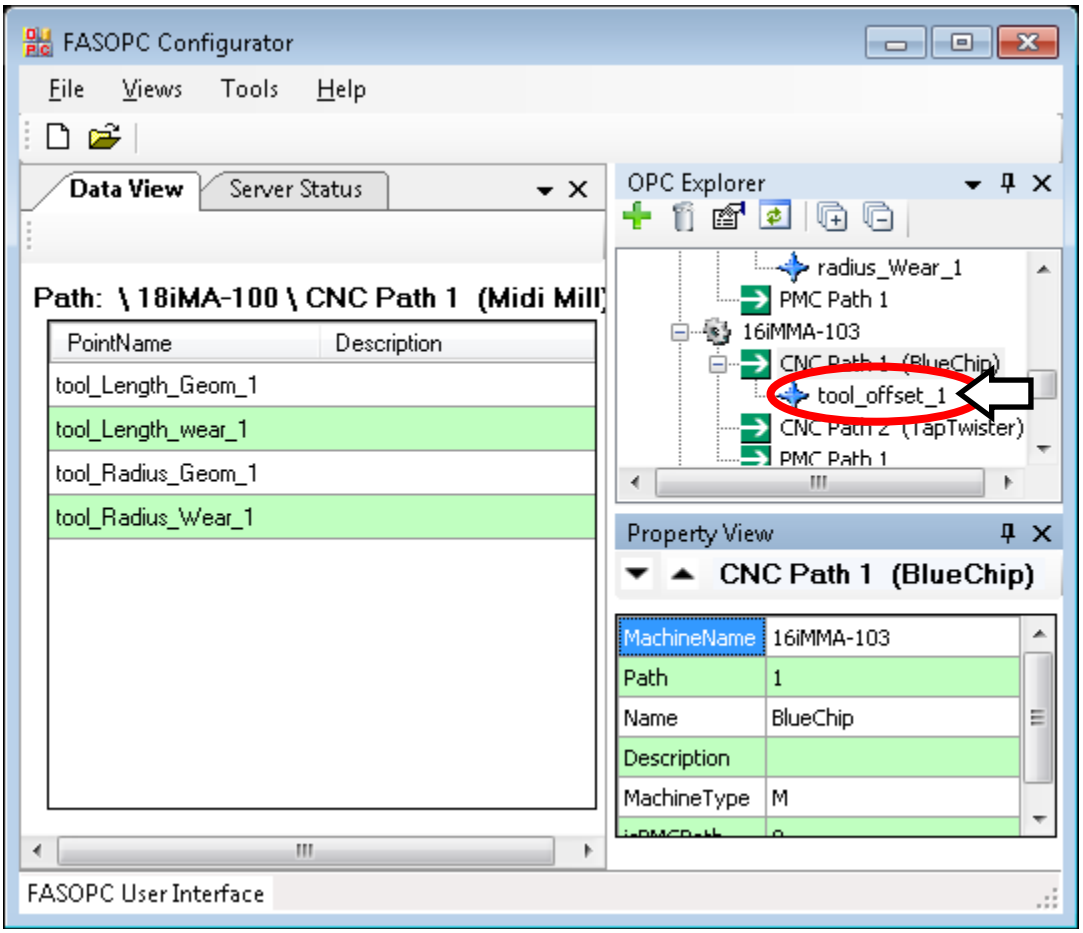
NOTE

To access the data with tool offset memory A, choose Cutter Radius – Wear as the offset type.

9) **Enter** "**enter the point name**", for example: TOOL_OFFSET_1.



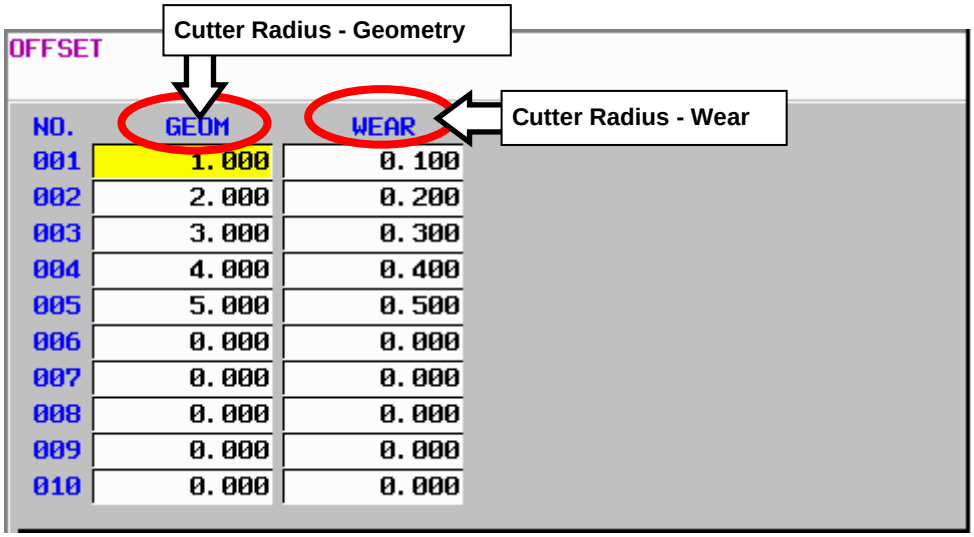
10) **Click the** "**DONE**" button. The new point will appear in OPC Explorer view.



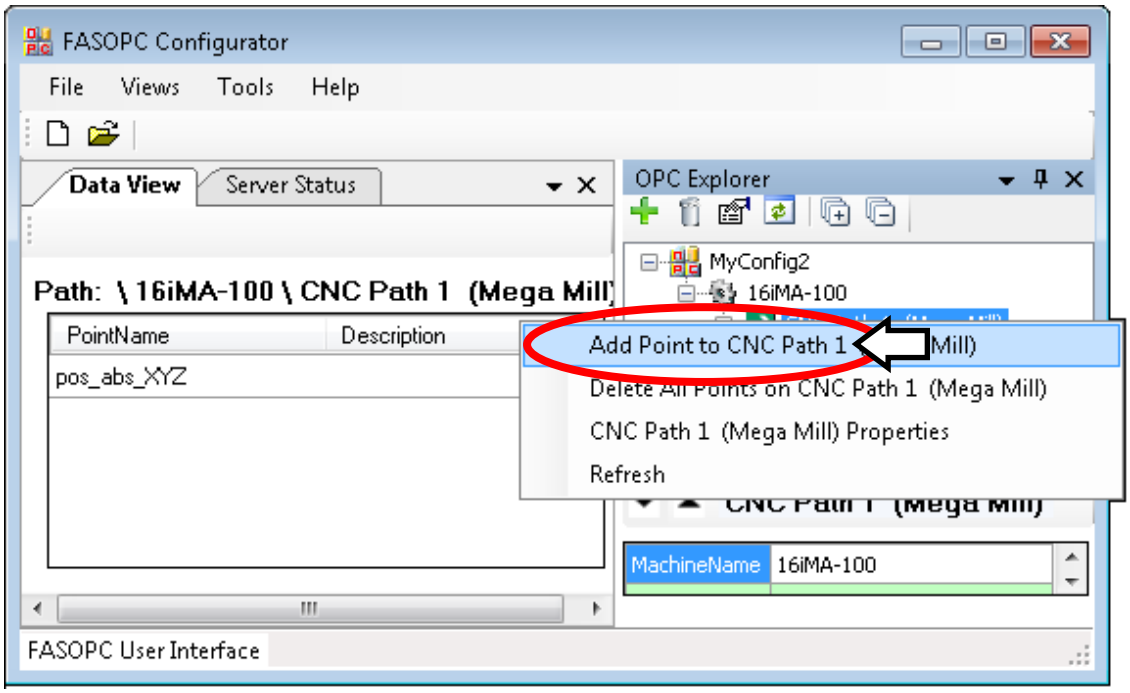
3.7.7 CNC Offset Memory B

The CNC tool offsets may be read or written through the client software. The mill control has three memory options A, B, and C. The memory B option has two data columns labeled GEOM and WEAR.

By pressing the OFFSET button on the MDI keypad, then select the OFFSET soft key the tool offset screen can be seen.



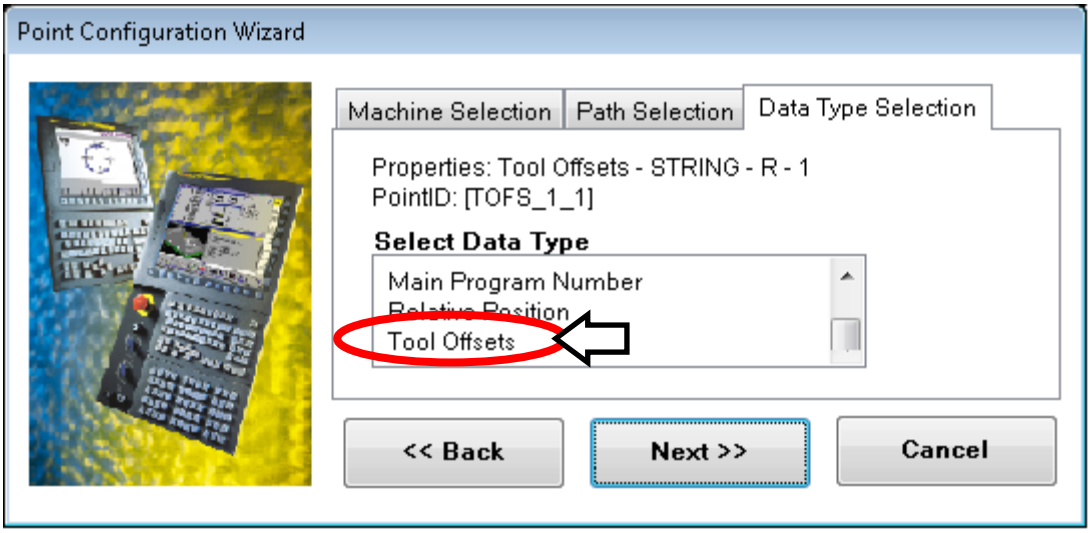
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

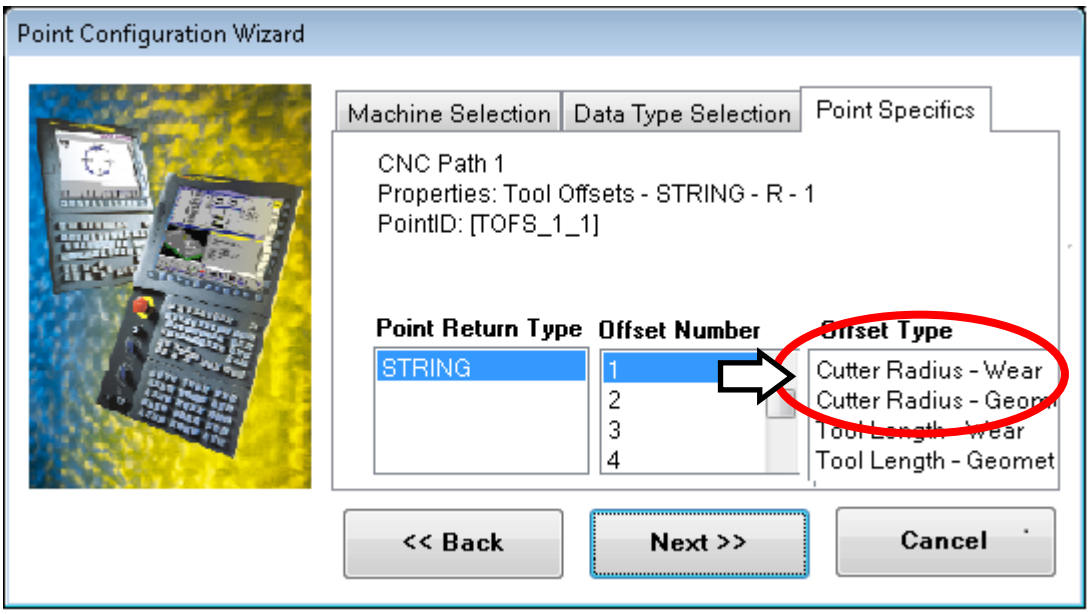
3) **Click** the "**NEXT**" button, the path selection tab will appear.

4) **Click** the "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**TOOL OFFSETS**" in the list box.

6) **Click the** "**NEXT**" button, the point specifics tab will appear.



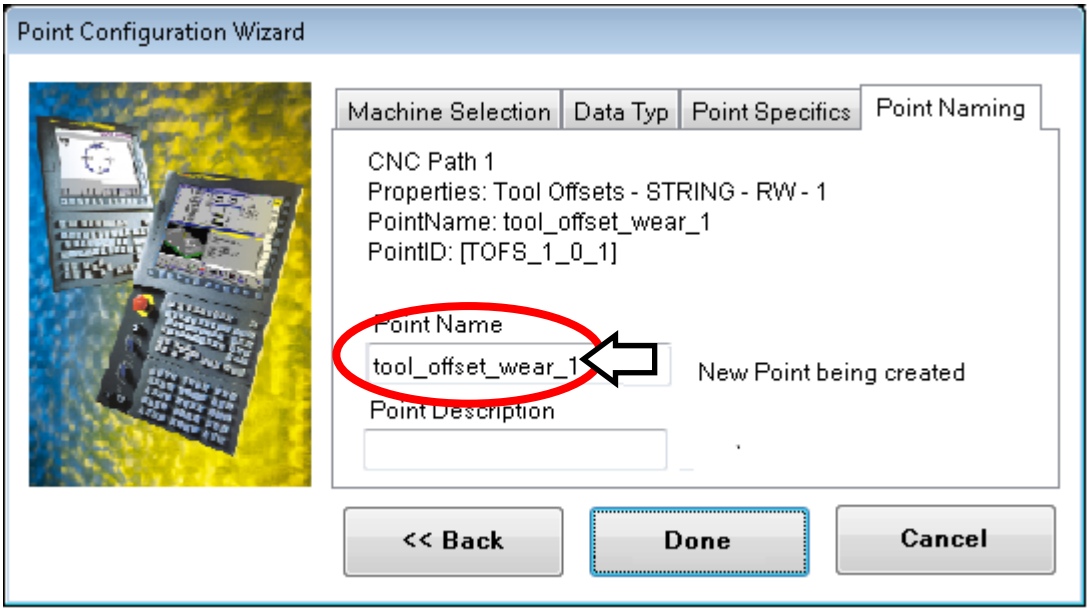
7) **Select** "**CUTTER RADIUS - WEAR**" in the offset type field.

8) **Click the** "**NEXT**" button, the point naming tab will appear.

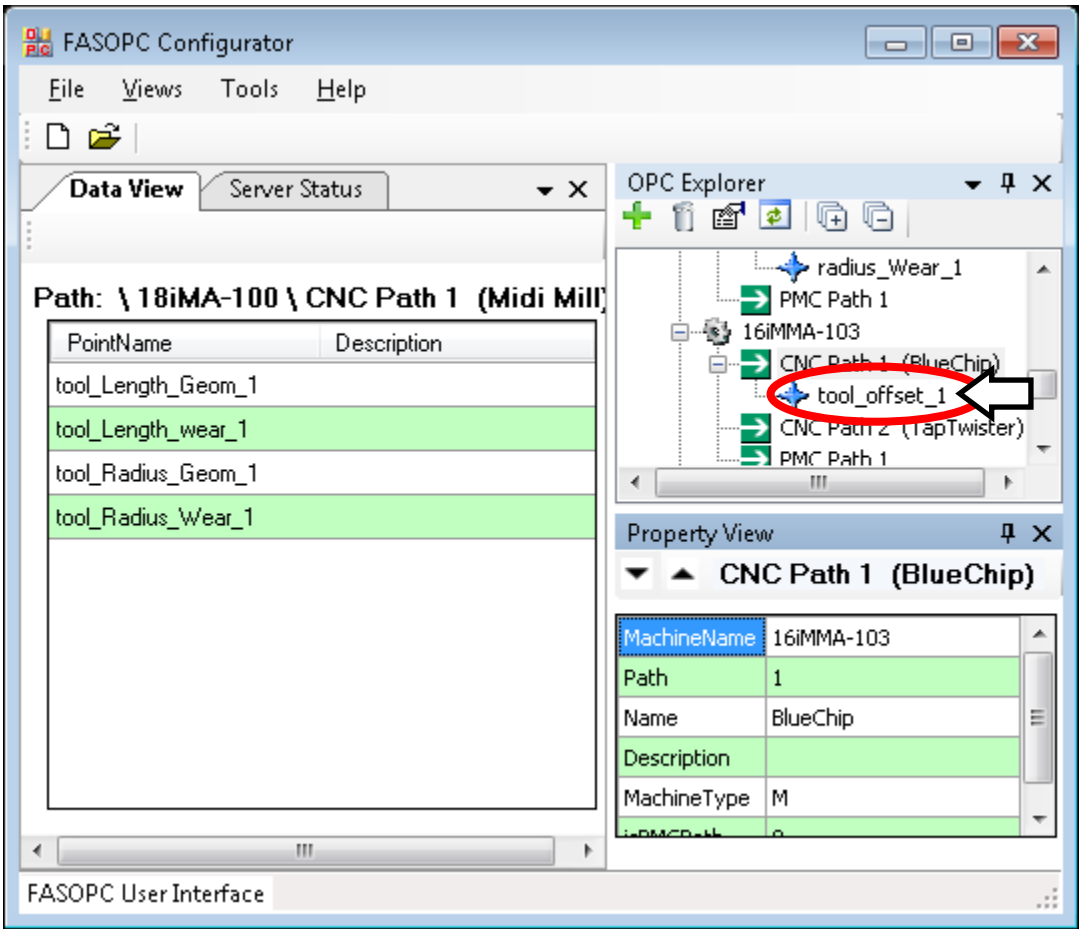
NOTE

With tool offset memory B, to access WEAR data choose Cutter Radius – Wear to access GEOM data choose Cutter Radius – Geometry.

9) **Enter** "**enter the point name**", for example: TOOL_OFFSET_WEAR_1.



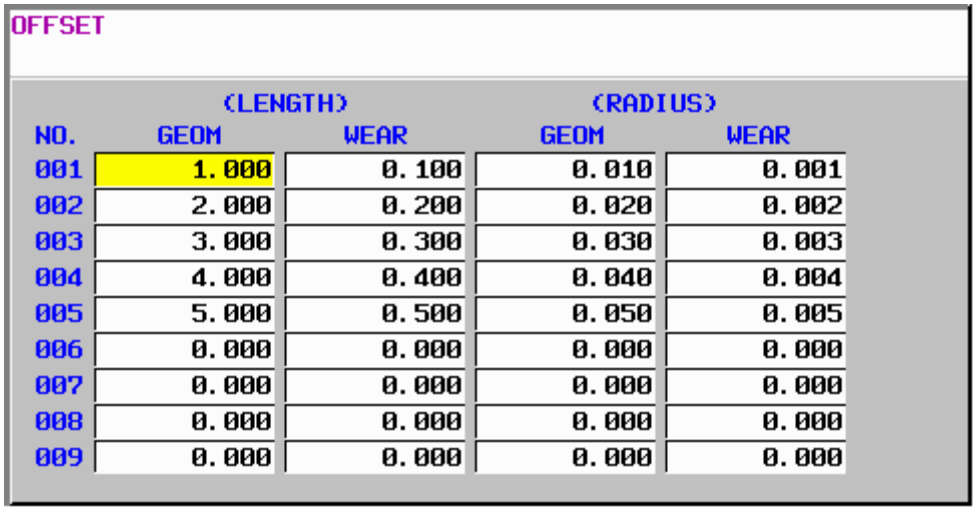
10) **Click the** "**DONE**" button. The new point will appear in OPC Explorer view.



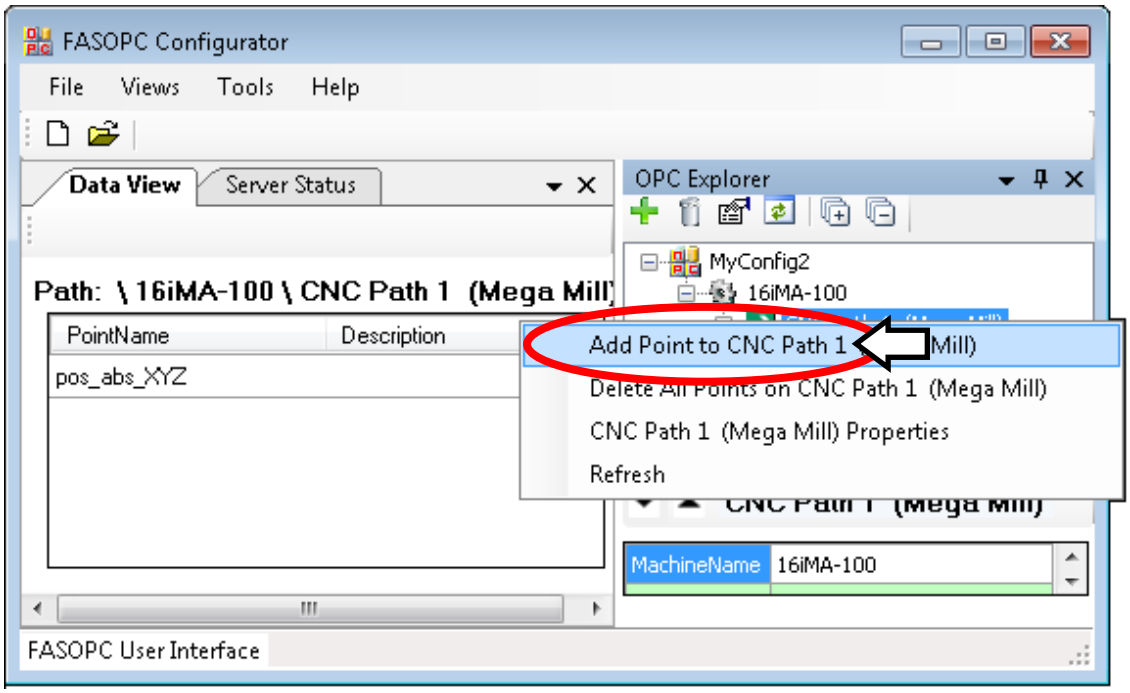
3.7.8 CNC Offset Memory C

The CNC tool offsets may be read or written through the client software. The mill control has three memory options A, B, and C. The memory C option has four data columns labeled LENGTH GEOM, LENGTH WEAR, RADIUS GEOM, and RADIUS WEAR.

By pressing the OFFSET button on the MDI keypad, then select the OFFSET soft key the tool offset screen can be seen.



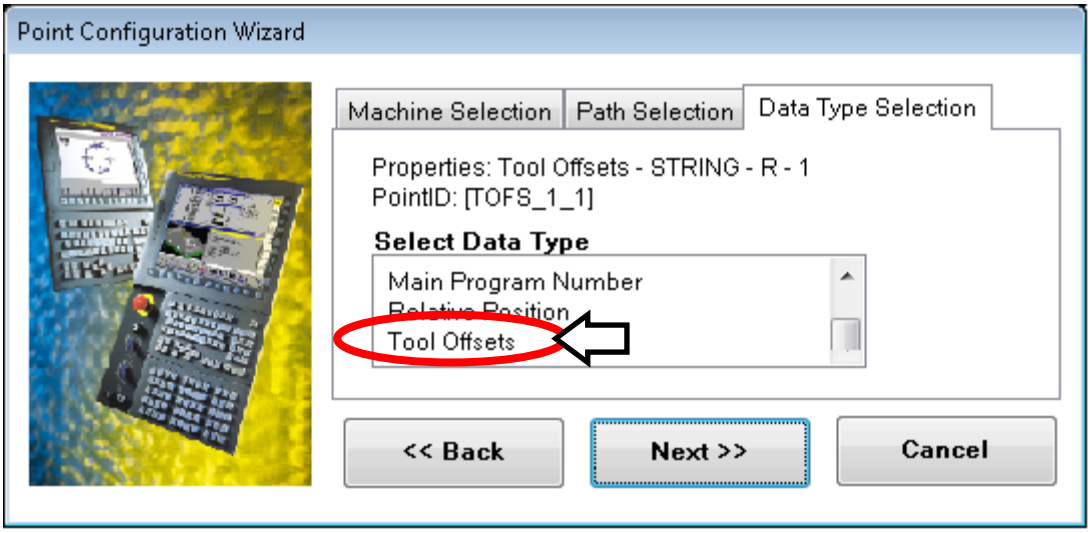
1) **Right-click the** "**CNC PATH 1**" branch.



2) **Click** "**Add Point to CNC PATH 1**" on the drop-down menu.

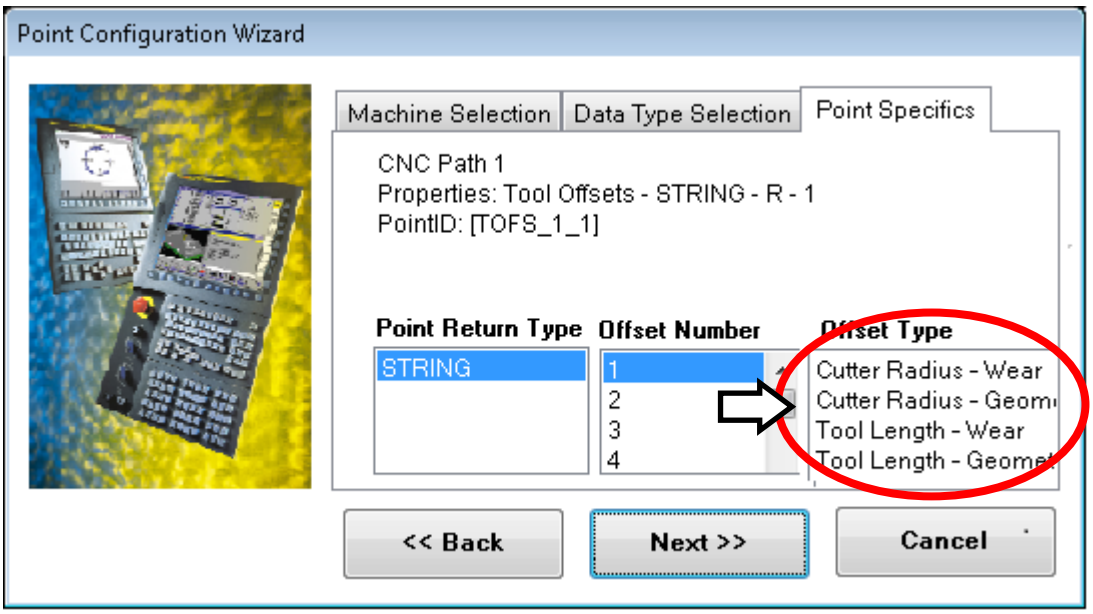
3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**TOOL OFFSETS**" in the list box.

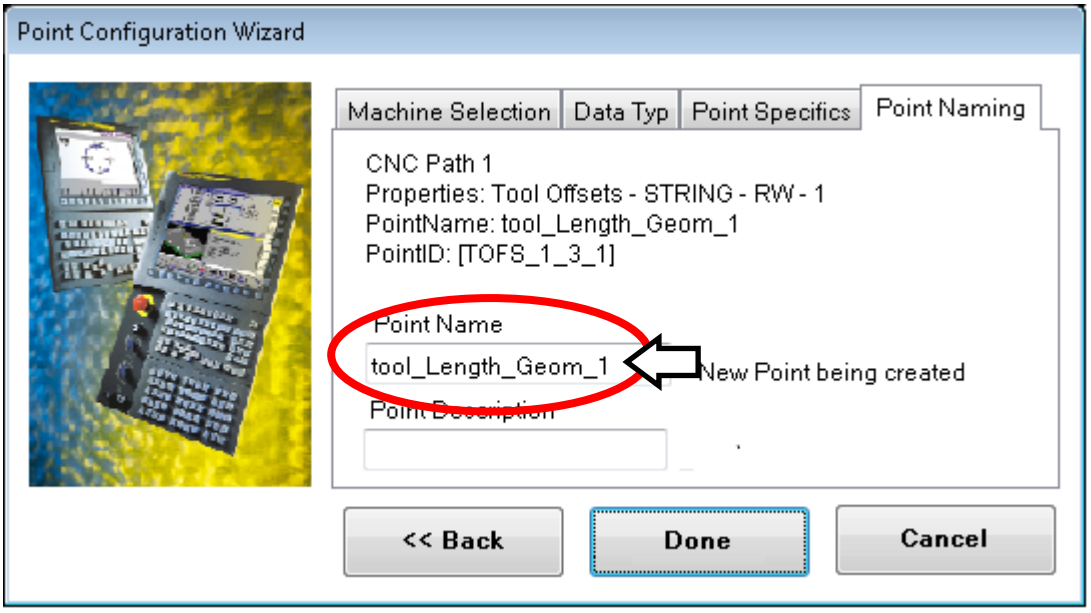
6) **Click the** "**NEXT**" button, the point specifics tab will appear.



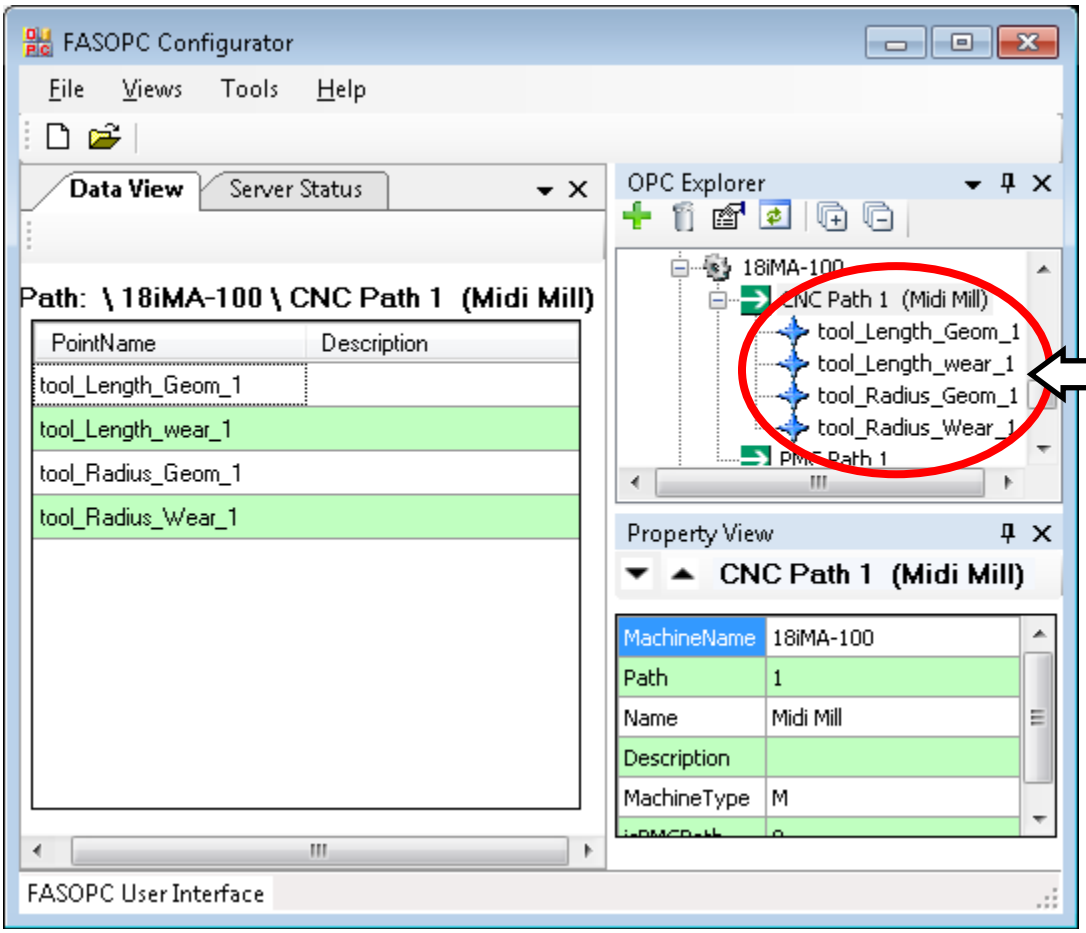
7) **Select** "**TOOL LENGTH - GEOMETRY**" in the offset type field
or select the appropriate type for the column you want to access.

8) **Click the** "**NEXT**" button, the point naming tab will appear.

9) **Enter** "**enter the point name**", for example: TOOL_LENGTH_GEOMETRY_1.



10) **Click** the "**DONE**" button. The new point will appear in OPC Explorer view.

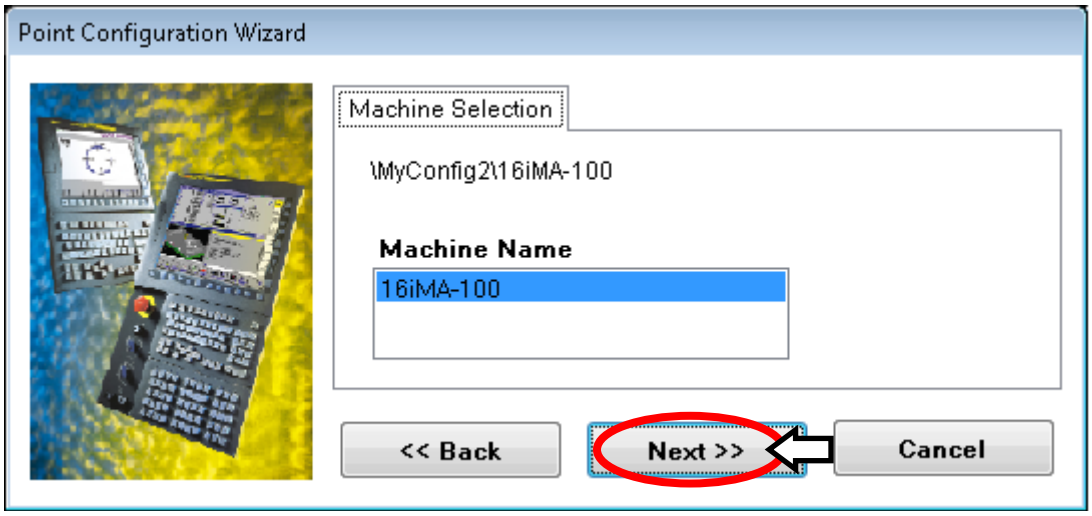


3.7.9 PMC Bit Point

The PMC bit status can be read or written by the server and displayed by the client. All addresses available for the specific PMC type can be used (X,Y,G,F,A,C,D,E,K,M,N,T).

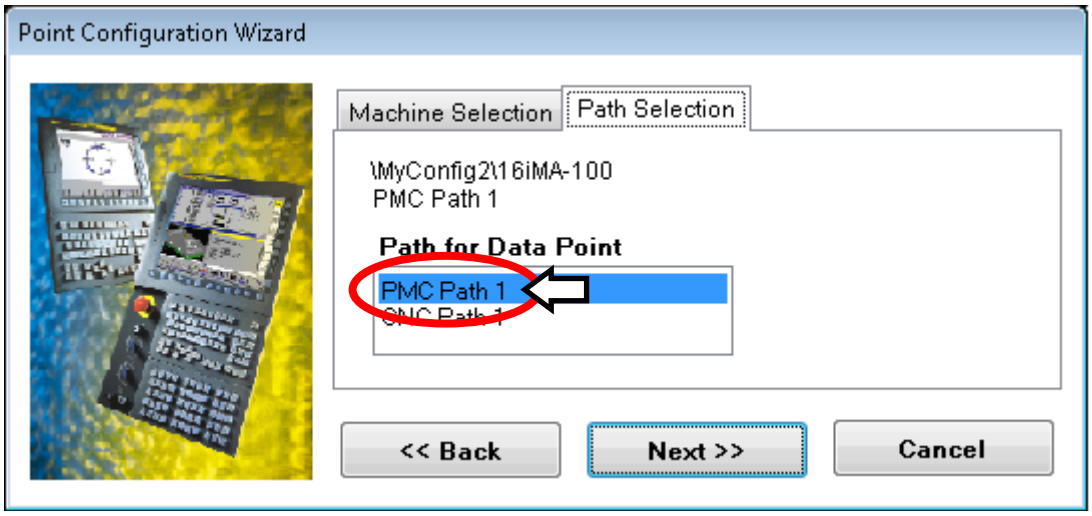
1) **There are three ways** to invoke the point configuration wizard…

- ✶ **On main menu – TOOLS ⇨ WIZARDS ⇨ POINT CONFIGURATION**
- ✶ **Explorer View – RIGHT-CLICK on the machine or path and select ADD POINT**
- ✶ **Explorer View – CLICK + toolbar button with the machine pre-selected**



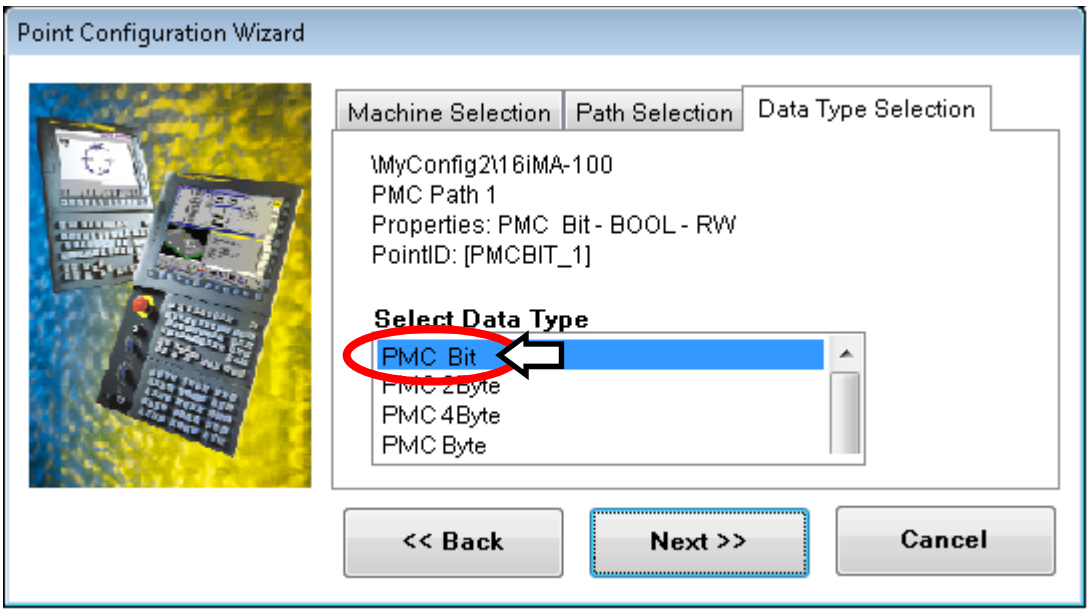
Since the machine was previously selected in the explorer view, the machine 16iMA-100 appears pre-selected in the MACHINE NAME list box.

2) **Click the** "**NEXT**" button. The path selection tab appears.



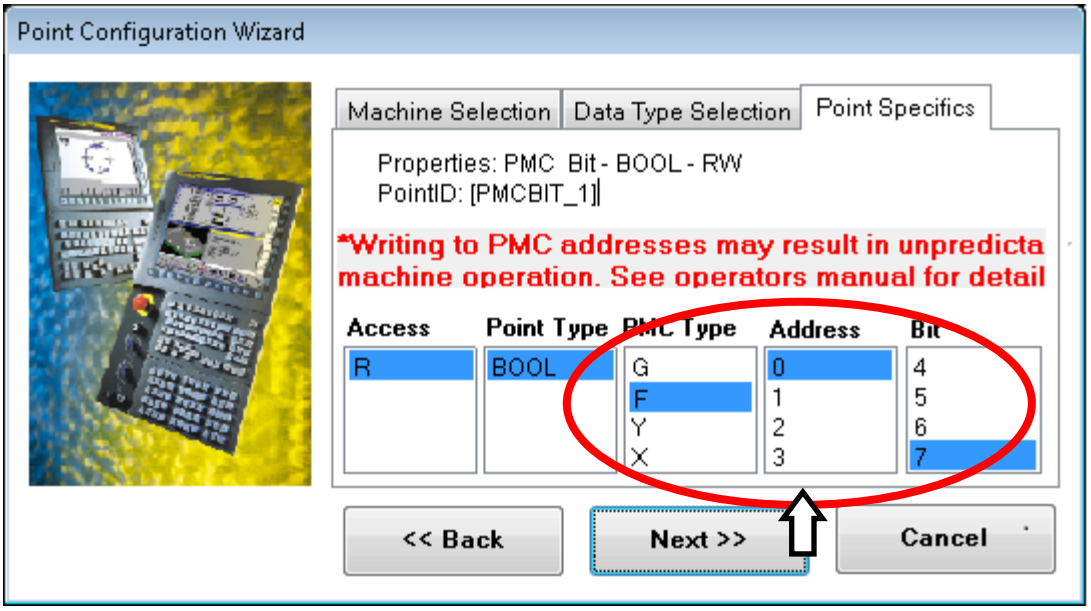
3) **Select "PMC PATH"** then click the "**NEXT**" button.

4) **Select** "**PMC BIT**" in the SELECT DATA TYPE list box.



5) **Select** "**PMC BIT**" in the SELECT DATA TYPE list box.

6) **Click the** "**NEXT**" button. The point specifics tab appears.



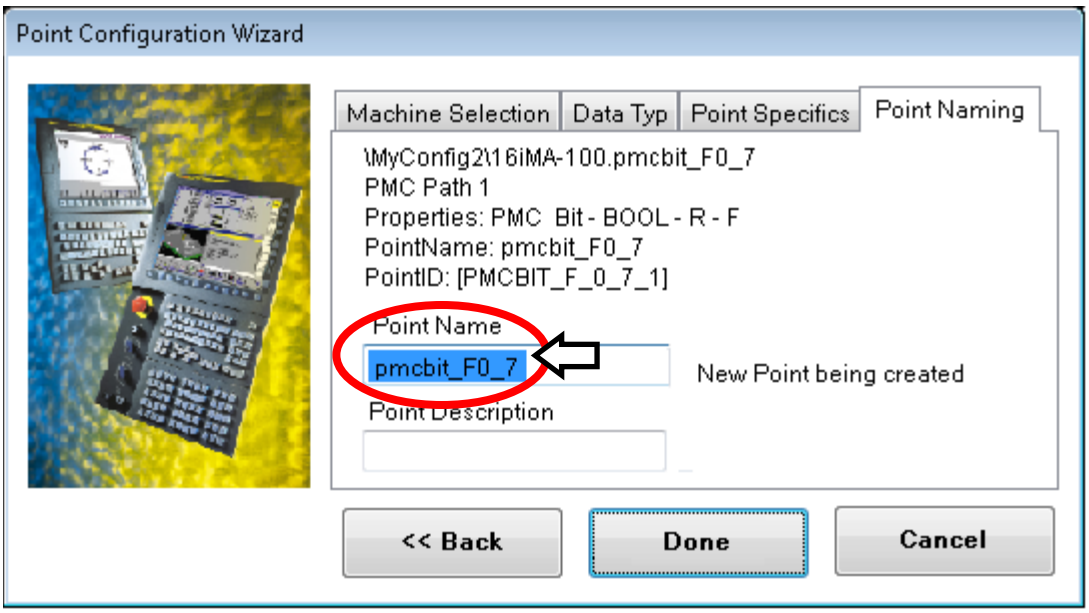
The **ACCESS** field determines what operations the client may perform. R=read only, W=write only, RW=read or write. Access RW is selected by default.

7) **Select "F0 bit 7"** then click the "**NEXT**" button. The ***Point Naming*** tab appears.

8) **Enter** "**enter the point name**", for example: PMCBIT_F0_7.
This name will be used in the client point selection window.

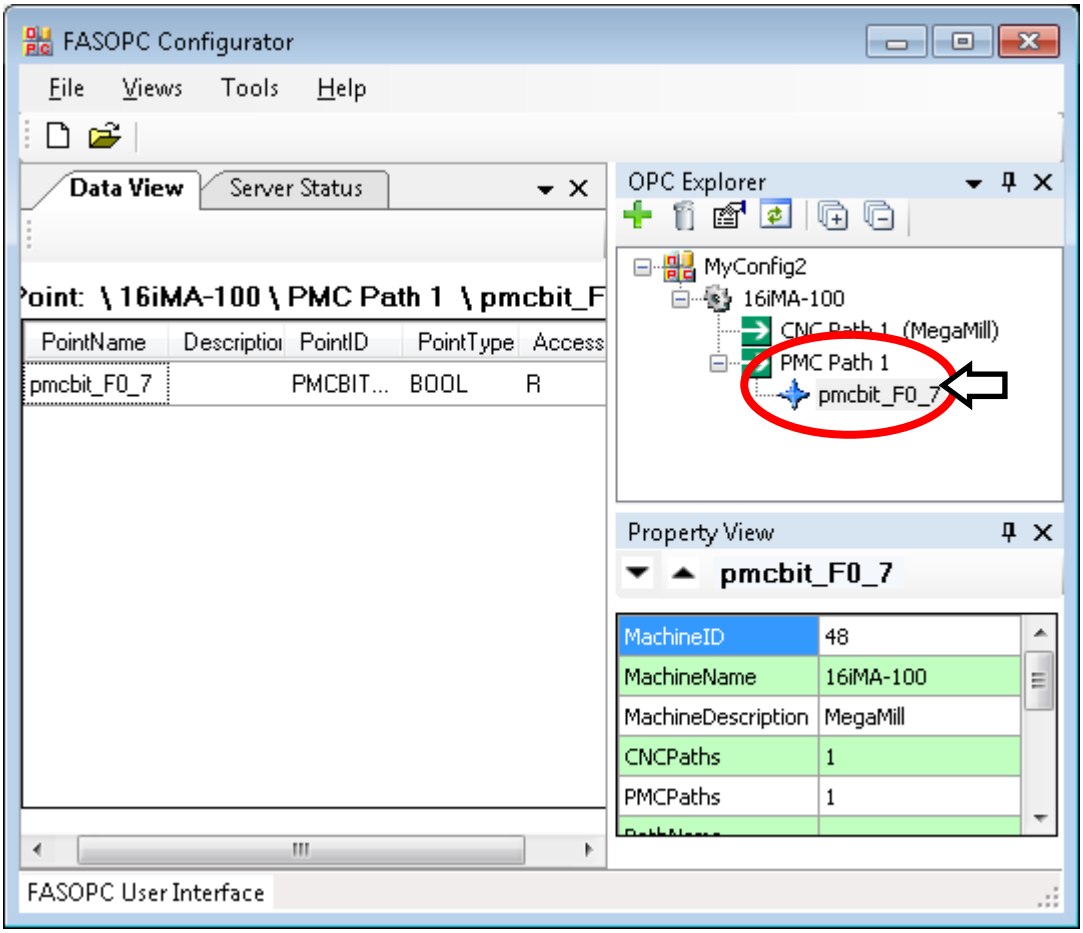
NOTE

Decimal points may not be used when creating point names.



9) **Enter** "**CYCLE RUN STATUS**" **in the POINT DESCRIPTION** field.

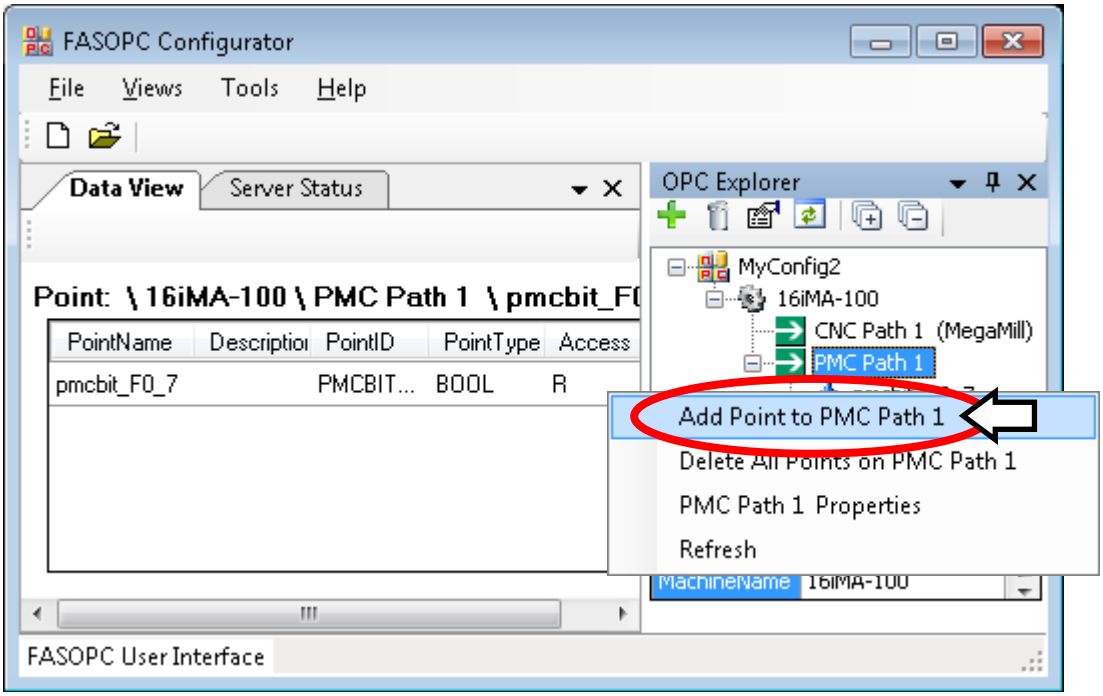
10) **Click the** "**DONE**" button, to complete the wizard.
The point should now appear in the OPC Explorer view.



3.7.10 PMC Byte Point

The PMC byte status can be read or written by the server and displayed by the client. All addresses available for the specific PMC type can be used (X,Y,G,F,A,C,D,E,K,M,N,T).

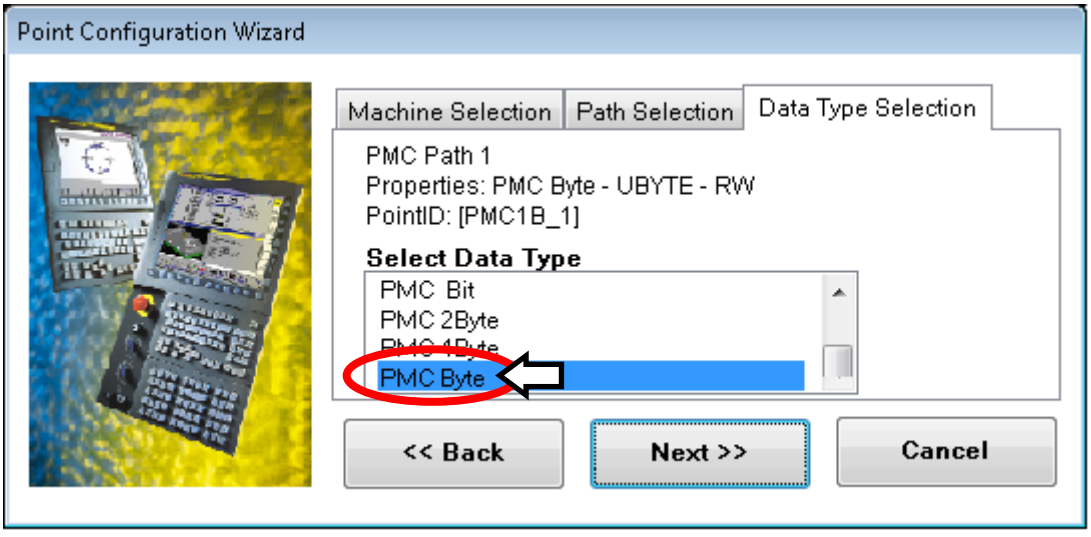
1) **Right-click the** "**PMC PATH 1**" branch.



2) **Click** "**Add Point to PMC PATH 1**" on the drop-down menu.

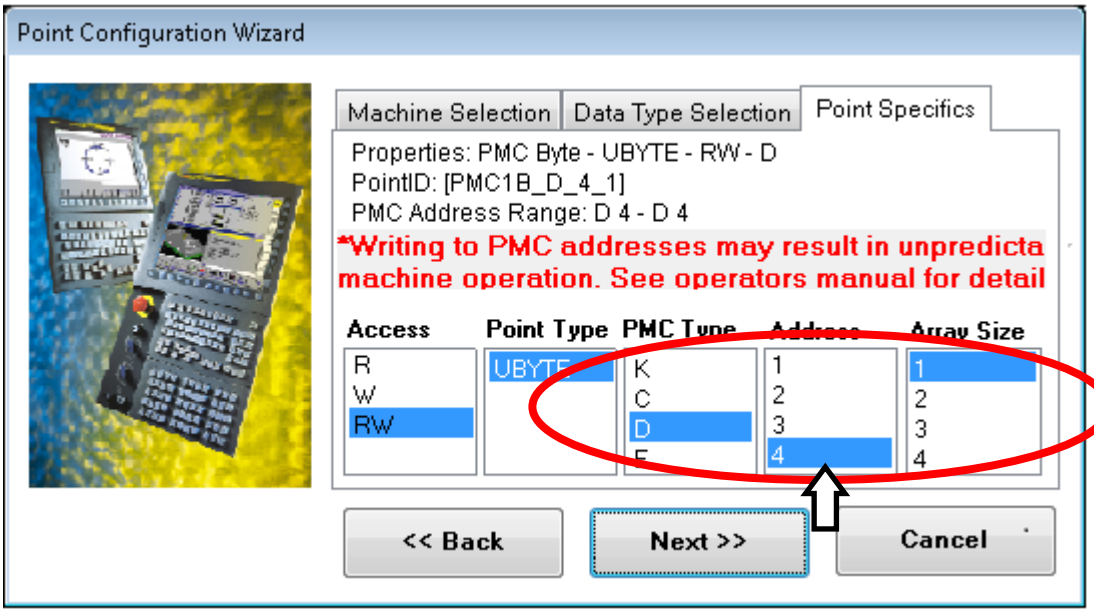
3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**PMC BYTE**" in the SELECT DATA TYPE list box.

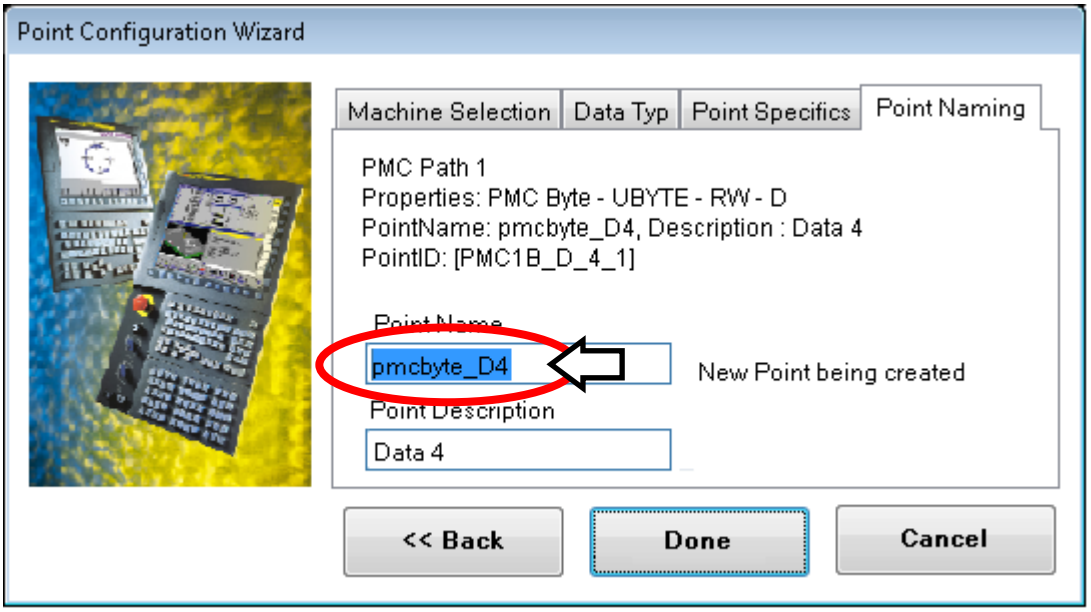
6) **Click the** "**NEXT**" button. The point specifics tab appears.



The **ACCESS** field determines what operations the client may perform. R=read only, W=write only, RW=read or write. Access RW is selected by default.

The **ARRAY SIZE** setting allows you to view multiple addresses simultaneously while only using one OPC server point. If '2' is selected, byte data from D4 and D5 will be displayed.

7) **Select "D4"** and ARRAY Size **"1"** then click the "**NEXT**" button.



8) **Enter** "**enter the point name**", for example: PMCBYTE_D4.

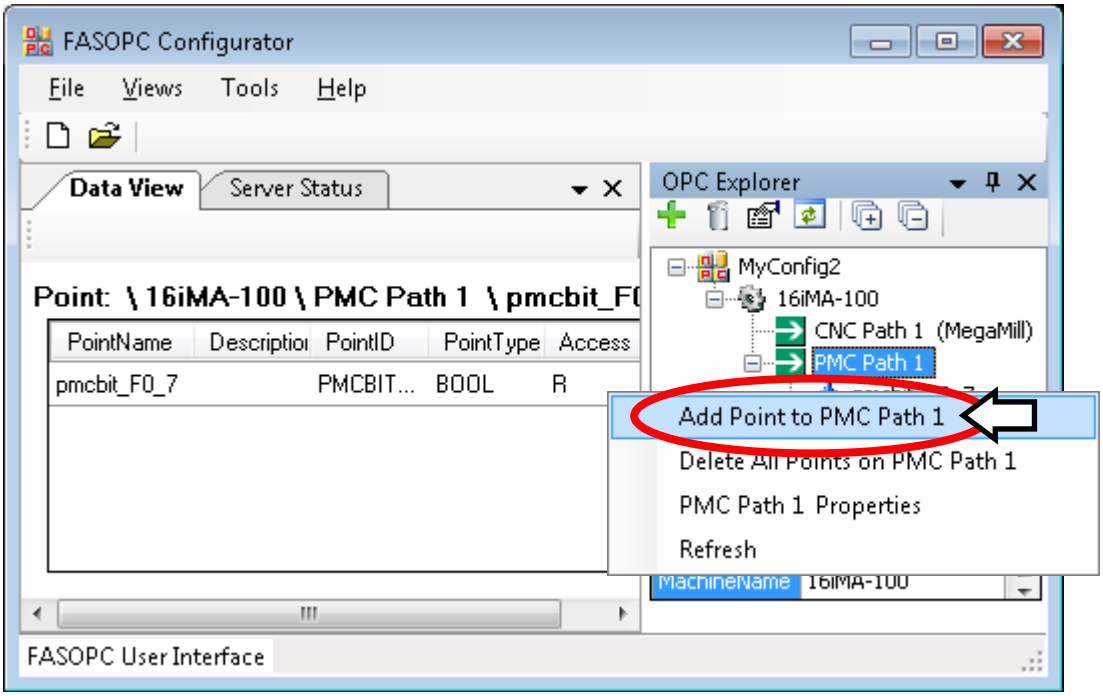
9) **Enter** "**DATA 4**" **in the POINT DESCRIPTION** field.

10) **Click the** "**DONE**" button, to complete the wizard.

3.7.11 PMC 2Byte Point

The PMC 2byte status can be read or written by through the client. Naturally all D registers are 8 bits, but they may be concatenated to create data storage for larger numbers. PMC timers are two bytes by default.

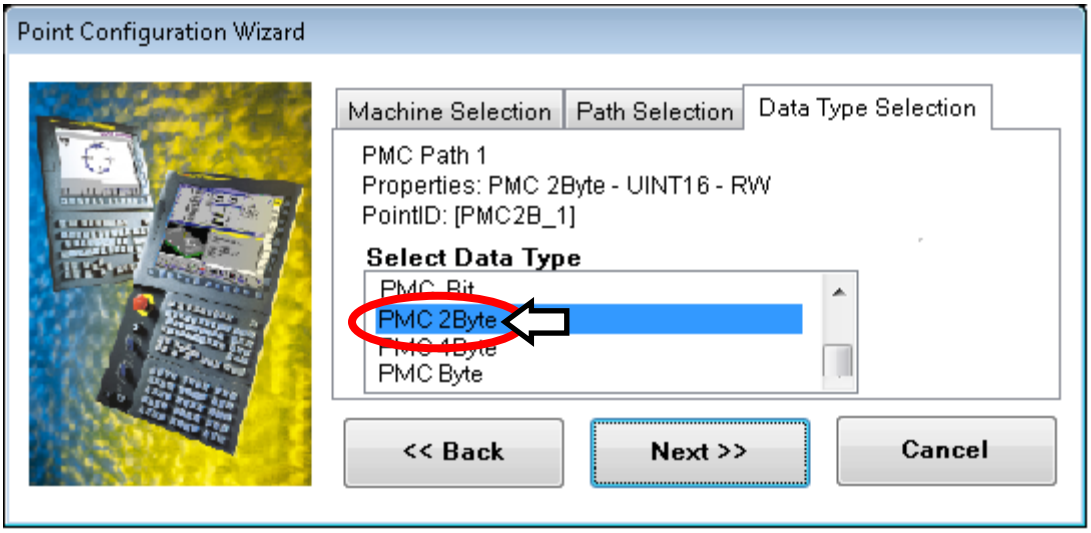
1) **Right-click the** "**PMC PATH 1**" branch.



2) **Click** "**Add Point to PMC PATH 1**" on the drop-down menu.

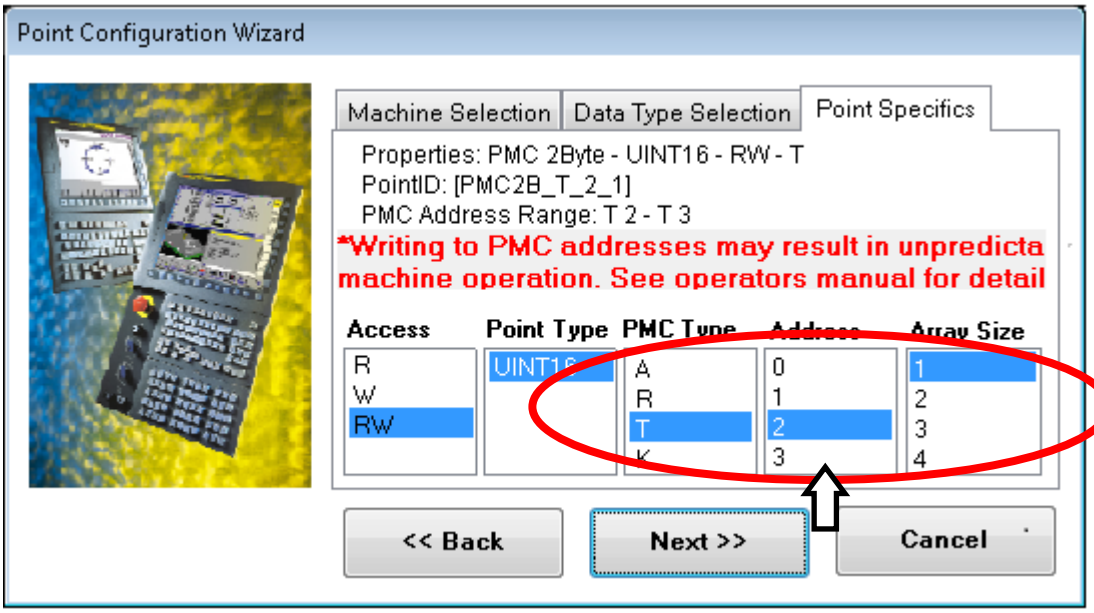
3) **Click the** "**NEXT**" button, the path selection tab will appear.

4) **Click the** "**NEXT**" button, the data type selection tab will appear.



5) **Select** "**PMC 2BYTE**" in the SELECT DATA TYPE list box.

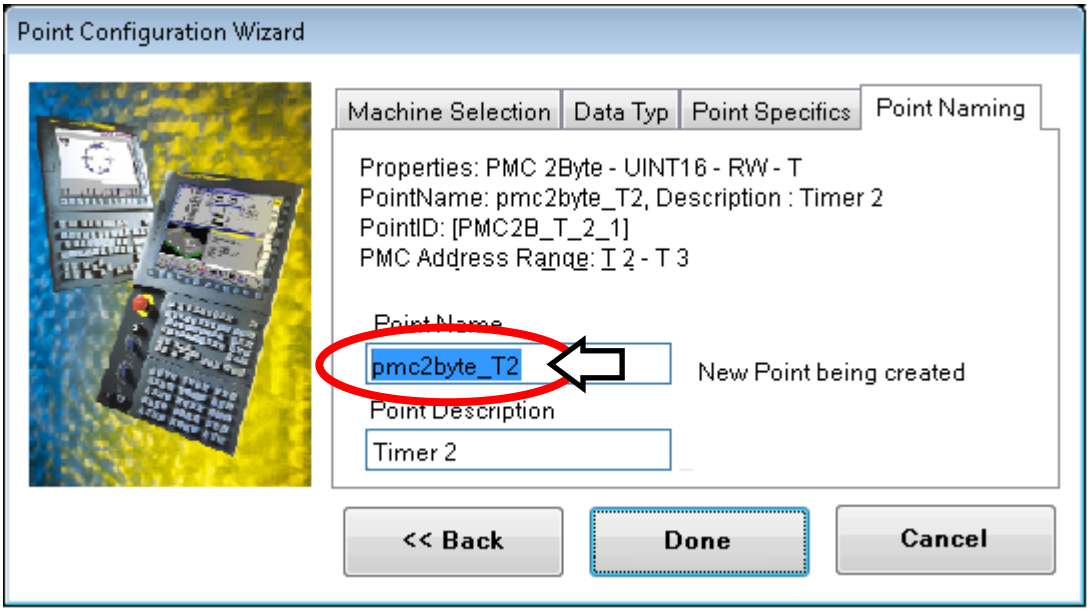
6) **Click the** "**NEXT**" button. The point specifics tab appears.



The **ACCESS** field determines what operations the client may perform. R=read only, W=write only, RW=read or write. Access RW is selected by default.

The **ARRAY SIZE** setting allows you to view multiple addresses simultaneously while only using one OPC server point. If '2' is selected, byte data from D4 and D5 will be displayed.

7) **Select "T2"** and ARRAY Size **"1"** then click the "**NEXT**" button.



8) **Enter** "**enter the point name**", for example: PMC2BYTE_T2.

9) **Enter** "**TIMER 2**" **in the POINT DESCRIPTION** field.

10) **Click the** "**DONE**" button, to complete the wizard.

3.8 Load New Server Configuration

Any changes to the configuration file need to be saved and then exported to the server. The file is saved in the C:\PROGRAMDATA\FANUCFAS\FASOPCUI folder as the working location, then it is exported to the server in the directory C:\PROGRAMDATA\FANUCFAS\FASOPCServer on the serving PC.

3.8.1 Save Configuration File

Follow these steps to copy the configuration files to the server.

1) **Click** "**FILE**" on the top menu.

2) **Click** "**Save Configuration**" on the drop-down menu.
This will save *myconfig2.FS2* file to the FASOPCUI directory folder of the local PC.

3) **Click** "**FILE**" on the top menu.

4) **Select** "**EXPORT**" on the drop-down menu.

5) **Navigate to the** "**FASOPCServer**" directory folder on the server PC.

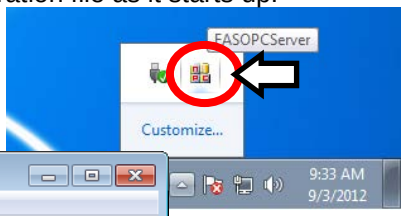
> The Default path is **C:\PROGRAMDATA\FANUCFAS\FASOPCServer**

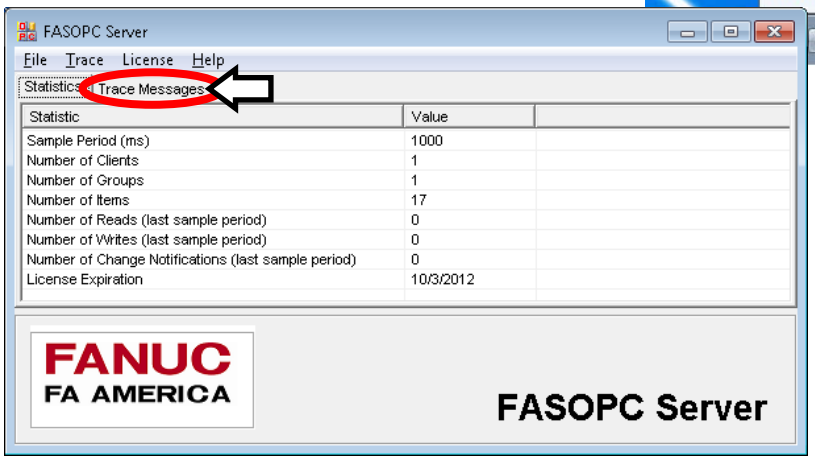
6) Click the "**OK**" button.
The file '***FASOPC.FS2***' will be created in the servers default folder.
This is required file name the OPC Server will load it's configuration from.

3.8.2 Restart the Server

After the new FASOPC.FS2 file is exported to the FASOPCServer it must be restarted to initiate the configuration changes. The server reads the new configuration file as it starts up.

1) **Double-click the** "**OPC**" icon in the system tray, at the bottom near the clock.





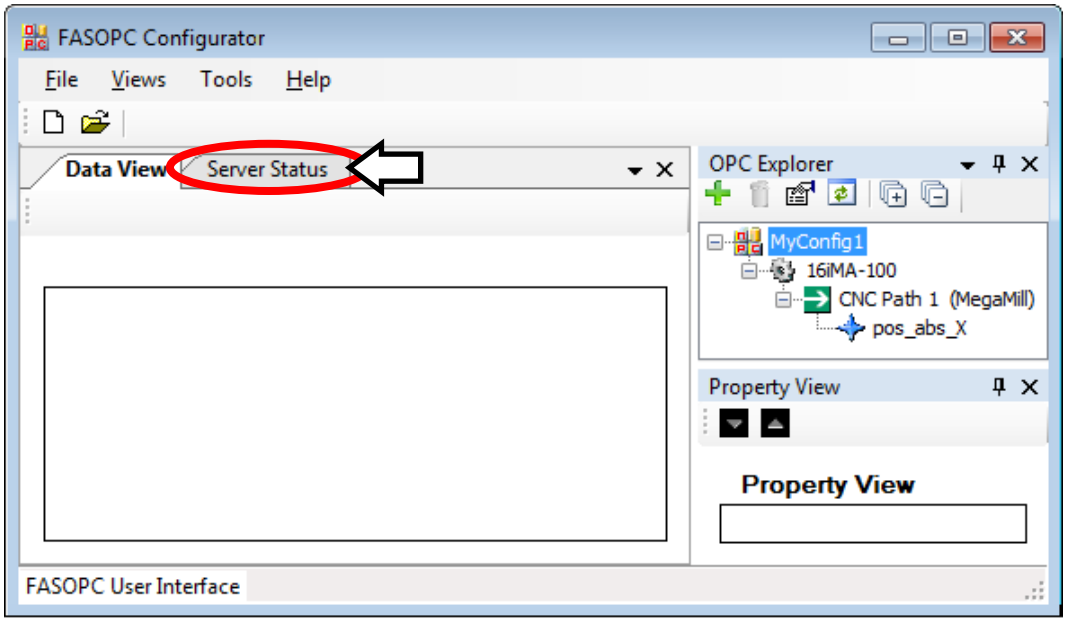
2) **Click the** "**TRACE MESSAGES**" tab, just below the drop-down menu.

3) **Click** "**FILE**" then "**RESTART SERVER**" on the drop-down menu.
Trace messages appear as the server restarts.

3.8.3 Connect to Server from FASOPC Configurator

The FASOPC configurator software is primarily used to create the server configuration file which describes the machines and point data to collect. The configurator can connect to the server, to show server status information also.

1) **Click the** "**SERVER STATUS**" tab next to the Data View tab.

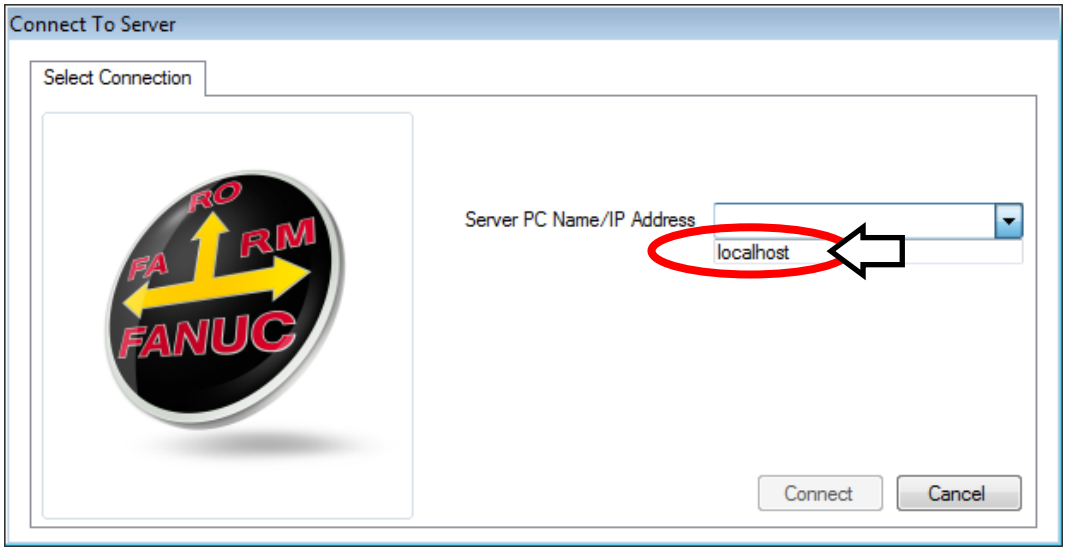


2) **Click** "**TOOLS**" on the top menu.

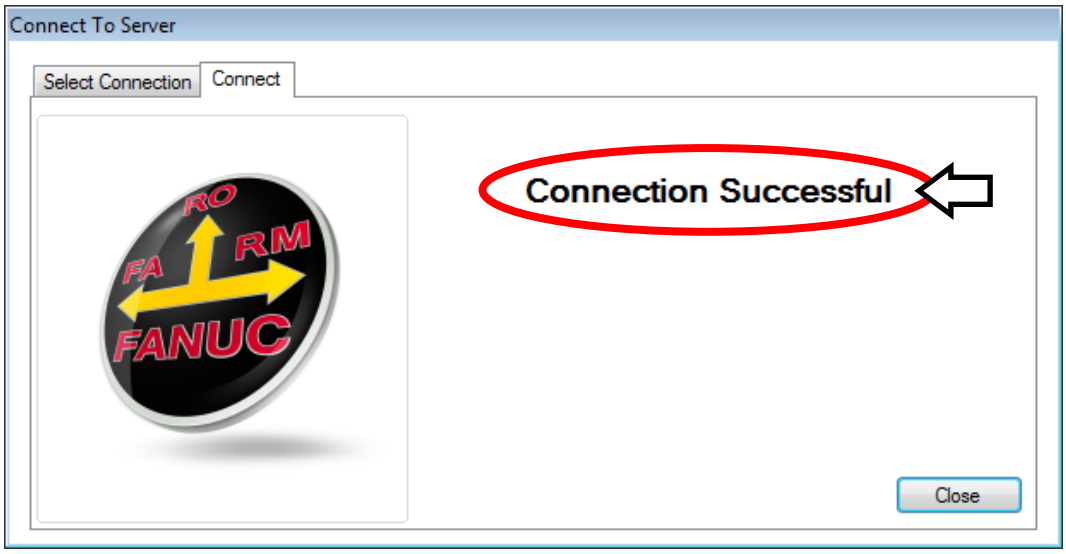
3) **Click** "**SERVER**" on the drop-down menu.

4) **Click** "**CONNECT TO SERVER**" choice.

5) **Click** "**LOCAL HOST**" or enter the network path to your server, in the drop-down box.

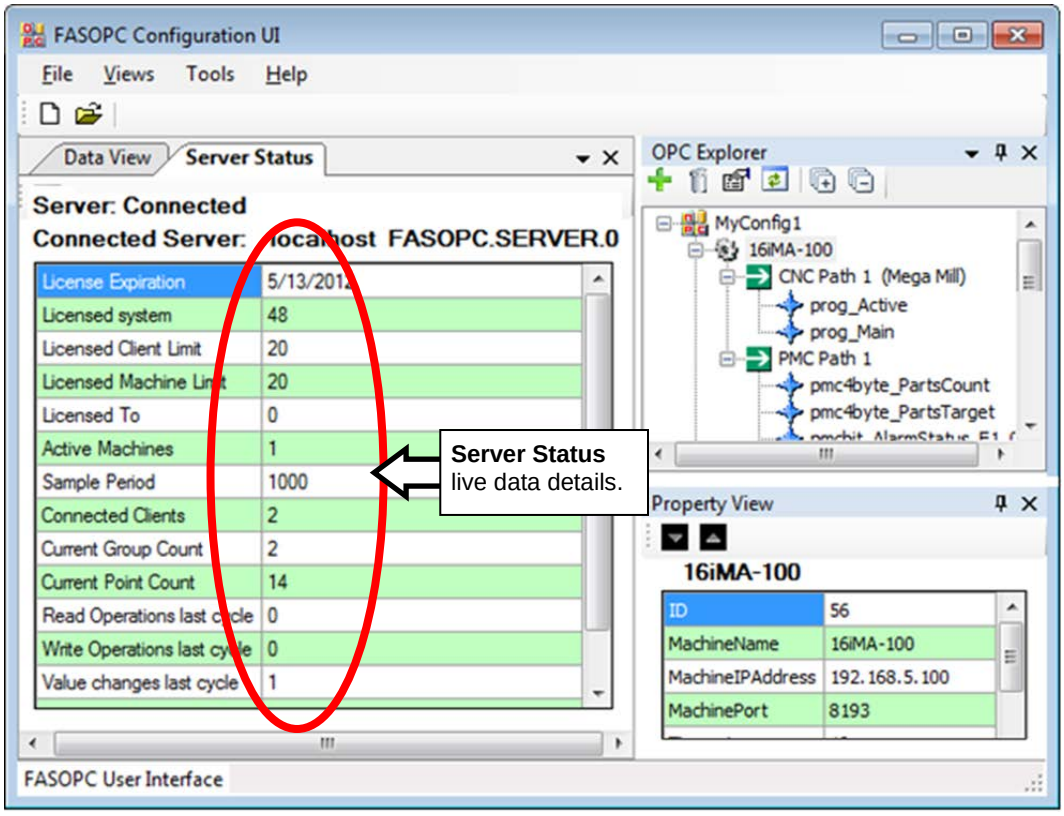


6) **Click the** "**CONNECT**" **button**. The message **CONNECTION SUCCESSFUL** will appear.



7) **Click the** "**CLOSE**" button.

The Server Status tab should now show live data.



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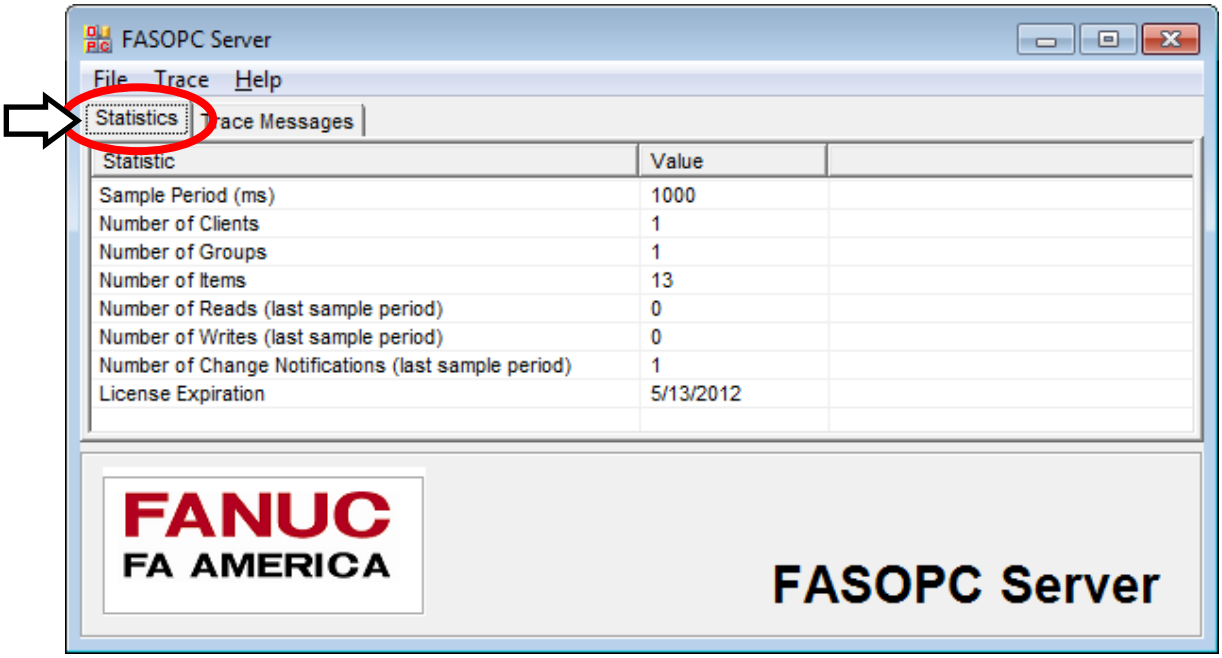
4 FASOPC Server

4 FASOPC Server

This chapter details the FASOPC Server user interface software. The server-side user interface is provided to display current statistics and trace activity.

1) **Double-Click the** "**FASOPC SERVER**" icon in the Windows system tray.

   The server user interface will open.



4.1 Statistics View

The statistics view shows real time data related to the server activity.

4.1.1 Sample Period

This is the number of milliseconds that must elapse before a point value is returned to the client since the last update.

4.1.2 Number of Clients

This field indicates how many OPC client programs are currently communicating with this FASOPC server.

4.1.3 Number of Groups

As points are added to subscription lists in the OPC server, they are placed within groups for management by the server. This field indicates how many groups have been created on the server by all currently connected clients.

4.1.4 Number of Items

The OPC server provides value to users when it returns data about points the client wishes to receive. This field indicates how many total points are being requested by all clients currently connected to the server.

4.1.5 Number of Read Operations

This field indicates how many READ requests occurred on the server in the last data update to the clients. Read operations are specific requests, either synchronous or asynchronous, but are not part of the subscription data being sent by the server. Subscription data is information that is reported by the server whenever it changes, rather than making the client continually ask for a point value.

4.1.6 Number of Write Operations

This field indicates how many WRITE requests occurred on the server in the last data update to the clients. Write operations are specific requests, either synchronous or asynchronous, and must be called specifically by a connected client. Executing a write operation gives the connected client the ability to change data on the device defined by the OPC point.

4.1.7 Number of Values Changed

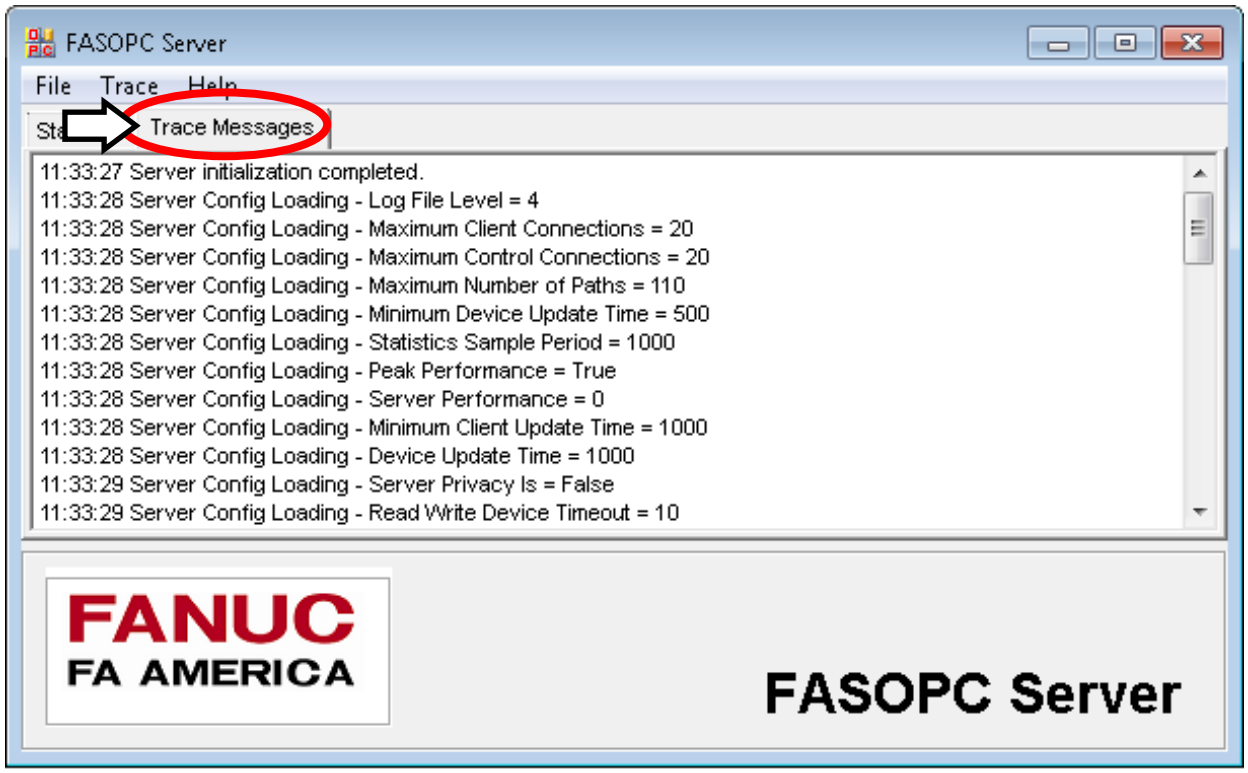
This field indicates how many unsolicited data items were reported back to the connected client in the last update cycle. Unsolicited items are items that are added to a group, and tagged for subscription with the OPC server. The server, seeing that the client has subscribed to the group, will publish a data set every time it determines that point values of the group have changed. Data items sent consist only of those that have changed their value since they were last reported.

4.1.8 License Expirations

Demo license expires 30 days from initial installation. A USB key may be purchased to license this software indefinitely.

4.2 Trace Messages

The trace messages tab shows a server activity log. Different log levels may be set to provide more detail of the activity.


FASOPC Server
File
Trace
Help
Trace Messages
11:33:27 Server initialization completed.
11:33:28 Server Config Loading - Log File Level = 4
11:33:28 Server Config Loading - Maximum Client Connections = 20
11:33:28 Server Config Loading - Maximum Control Connections = 20
11:33:28 Server Config Loading - Maximum Number of Paths = 110
11:33:28 Server Config Loading - Minimum Device Update Time = 500
11:33:28 Server Config Loading - Statistics Sample Period = 1000
11:33:28 Server Config Loading - Peak Performance = True
11:33:28 Server Config Loading - Server Performance = 0
11:33:28 Server Config Loading - Minimum Client Update Time = 1000
11:33:28 Server Config Loading - Device Update Time = 1000
11:33:29 Server Config Loading - Server Privacy Is = False
11:33:29 Server Config Loading - Read Write Device Timeout = 10
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FASOPC Server

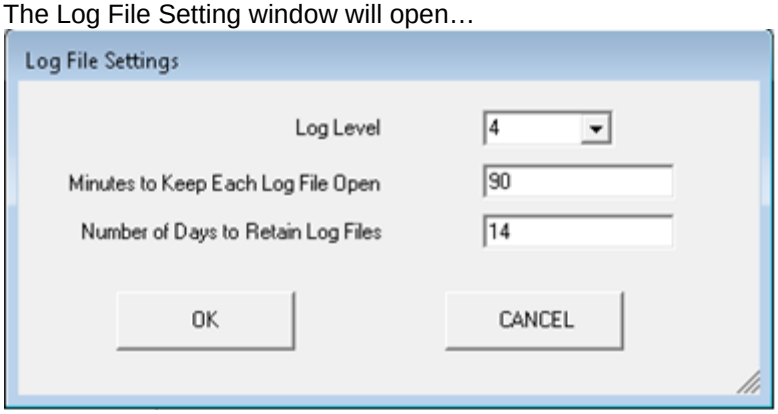
4.2.1 Log File Settings

For everyday use a log level of 1 will provide enough detail to accurately indicate server activity. During setup or troubleshooting a log level of 5 shows the greatest detail of server processing.

1) **Click** "**TRACE**" on the top menu.

2) **Click** "**LOG FILE SETTINGS**" on the drop-down menu.

The Log File Setting window will open…



3) **Click** "**OK**" to close the window.

4.2.2 Log File Open Time

This sets the maximum amount of time the current server log file will be used. At the end of this period a new log file will be created and the old file will remain in the LOGS directory folder. This value is set in units of minute, default is 90 minutes. Setting range is 0~2,147,483,647.

4.2.3 Log File Maximum Lifetime

This sets how long the log file will remain in the server LOGS directory folder. This value is set in units of days, default is 14 days. Any log files that remain in the folder for more than 14 days will be automatically deleted from the folder. Setting range is 0~32,767.

4.2.4 Log File Level

This setting determines how detailed the server log messages will be. Log level 1 is the least amount of logging and is used for typical day to day operations. Log level 5 is the most detailed logging level and is used when troubleshooting a connection or server problem.

4.3 File Menu

4.3.1 Request Clients to Disconnect

This selection sends a message to the connected OPC clients requesting they disconnect. This is useful when a new configuration file (.FS2) is downloaded to the server.

4.3.2 Force Server Exit

Normally the server will not close while clients are connected. This function forces the server to shut down even with clients connected.

4.3.3 Restart Server

This function restarts the server. The connected clients will notice a momentary delay in information flow.

4.4 Help Menu

The help menu currently has only one selection, which is ABOUT. The ABOUT box indicates the product name, version, and licensing status.

1) **Click** "**HELP**" on the top menu.

2) **Click** "**ABOUT**" on the drop-down menu.

   The ABOUT box will appear…

Version 1.0.0.0 is the first production release of this software.

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5 Troubleshooting

5 Troubleshooting

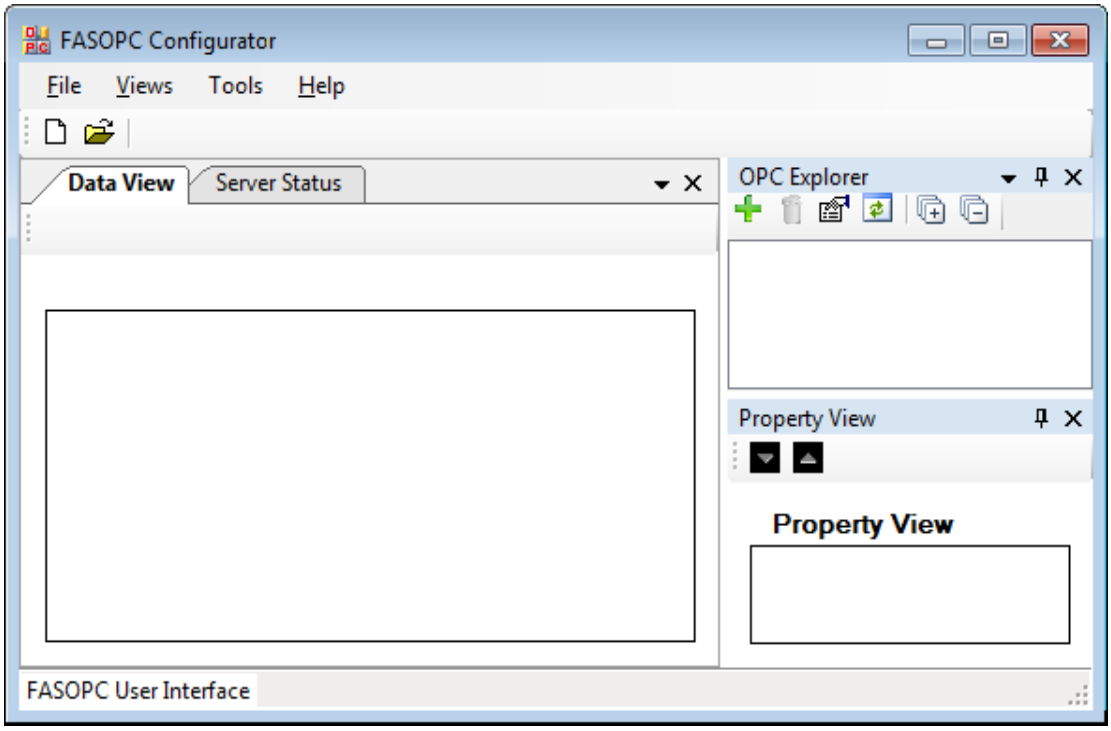
This chapter provides details of the expected system startup sequence and troubleshooting when fault messages occur.

5.1 Expected Start-up Sequence

5.1.1 Server Start-up

The server automatically starts running when FASOPC Configurator or any client attempts to connect. Once the server is running, an OPC icon appears in the Windows system tray. Depending on the Windows settings it may be necessary to mouse click in the system tray area to see the OPC Server icon.

1) **Double-Click the** "**FASOPC Configurator**" icon on the desktop. The user interface will open.



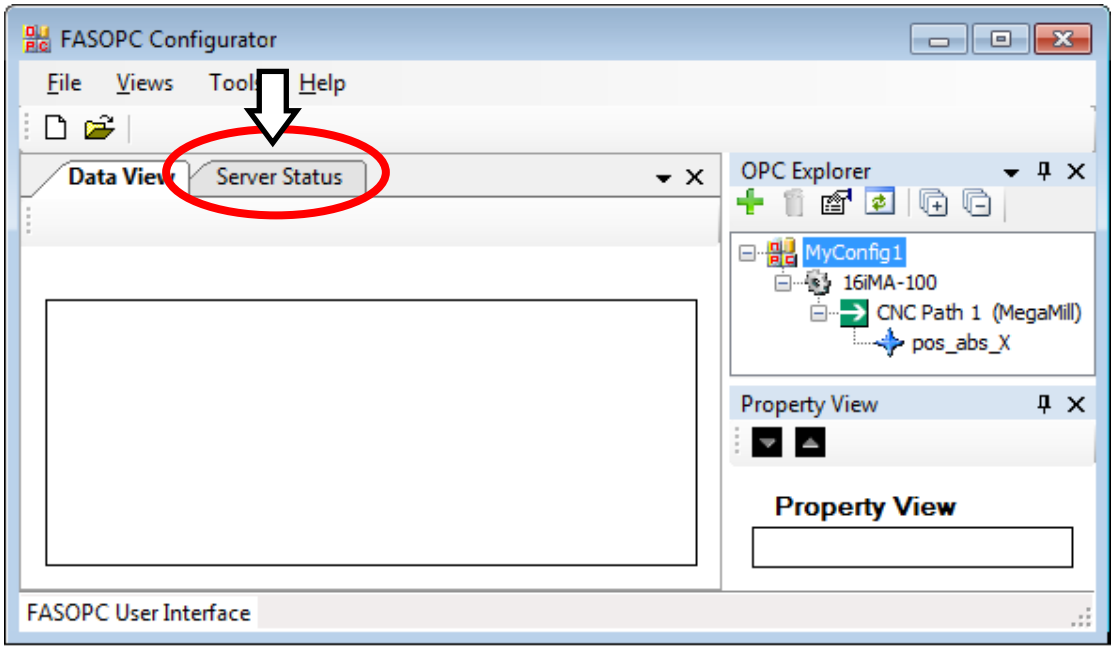
2) **Click** "**FILE**" on the top menu.

3) **Click** "**Open Configuration**" on the drop-down menu.

4) **Select <your current configuration file>.**

5) **Click the** "**OPEN**" button.

6) **Click the** "**SERVER STATUS**" tab next to the Data View tab.

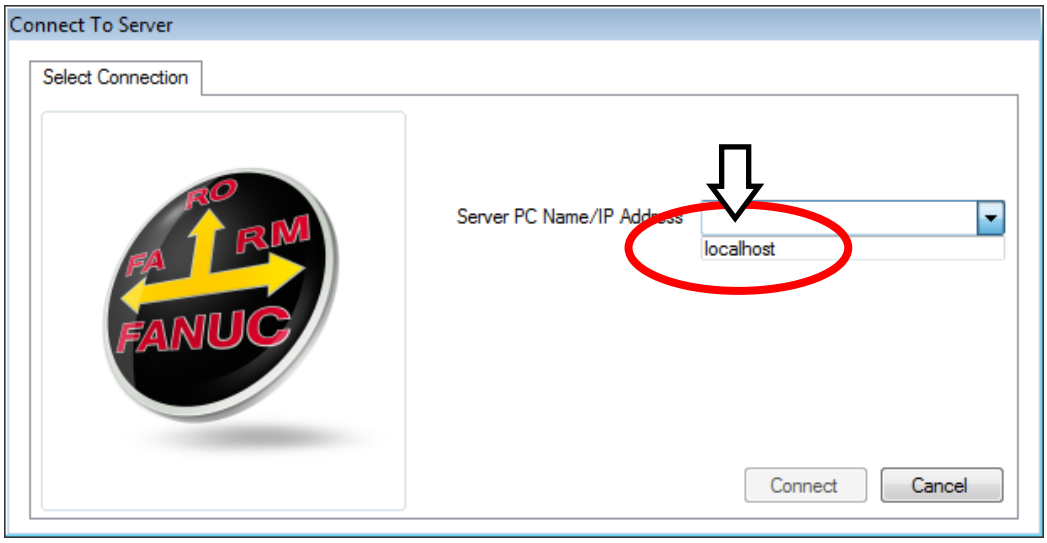


7) **Click** "**TOOLS**" on the top menu.

8) **Click** "**SERVER**" on the drop-down menu.

9) **Click** "**CONNECT TO SERVER**" choice.

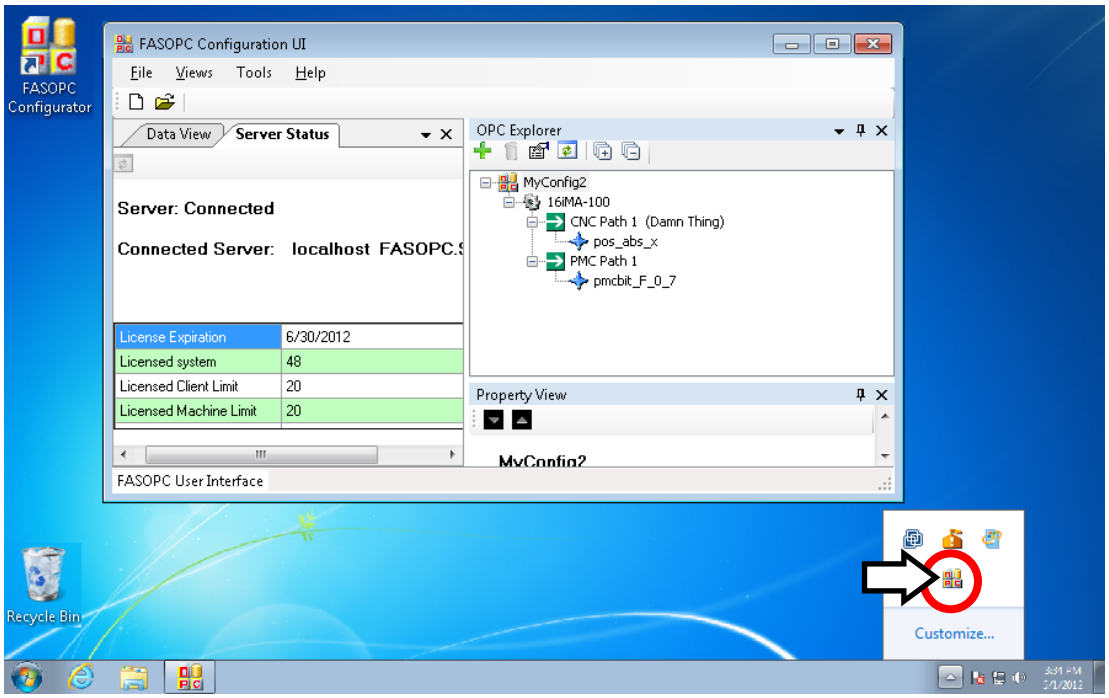
10) **Choose <your server>** in the drop-down box.



11) **Click the** "**CONNECT**" button. The message **CONNECTION SUCCESSFUL** will appear.

The OPC icon should now appear in the Windows system tray.

12) **Click the** "**CLOSE**" button.



The OPC icon should now appear in the Windows system tray.

13) **Double-click the** "**OPC**"' icon in the system tray.

This is a sample of the start-up sequence when the demo license is applied.

Immediately after this sequence, the server starts loading the points/tags that are configured in the file.

A log file for the client you are using is probably provided by the client developer. This file may also have relevant status messages.

FASOPC Server
File Trace Help
Statistics Trace Messages
11:33:27 Server initialization completed.
11:33:28 Server Config Loading - Log File Level = 4
11:33:28 Server Config Loading - Maximum Client Connections = 20
11:33:28 Server Config Loading - Maximum Control Connections = 20
11:33:28 Server Config Loading - Maximum Number of Paths = 110
11:33:28 Server Config Loading - Minimum Device Update Time = 500
11:33:28 Server Config Loading - Statistics Sample Period = 1000
11:33:28 Server Config Loading - Peak Performance = True
11:33:28 Server Config Loading - Server Performance = 0
11:33:28 Server Config Loading - Minimum Client Update Time = 1000
11:33:28 Server Config Loading - Device Update Time = 1000
11:33:29 Server Config Loading - Server Privacy Is = False
11:33:29 Server Config Loading - Read Write Device Timeout = 10
11:33:29 Server Config Loading - Log File Name = FASOPCServer
11:33:29 Server Config Loading - Log File Life Time = 90
11:33:29 Server Config Loading - Log File Max Life = 14
11:33:29 Server Config Loading - Shutdown On Last Client Disconnect = False
11:33:29 Server Config Loading - Demo Length in Days = 60
11:33:29 Valid License = false
11:33:29 Demo License Installed
11:33:29 Valid License = true
11:33:30 License: Expiration = 6/30/2012 4:33:26 PM
11:33:30 License: AppName = FASOPC Server
11:33:30 License: Version = 0.0.1.0
11:33:30 License: Users allowed = 20
11:33:30 License: Machine instances allowed = 20
11:33:30 Demo License
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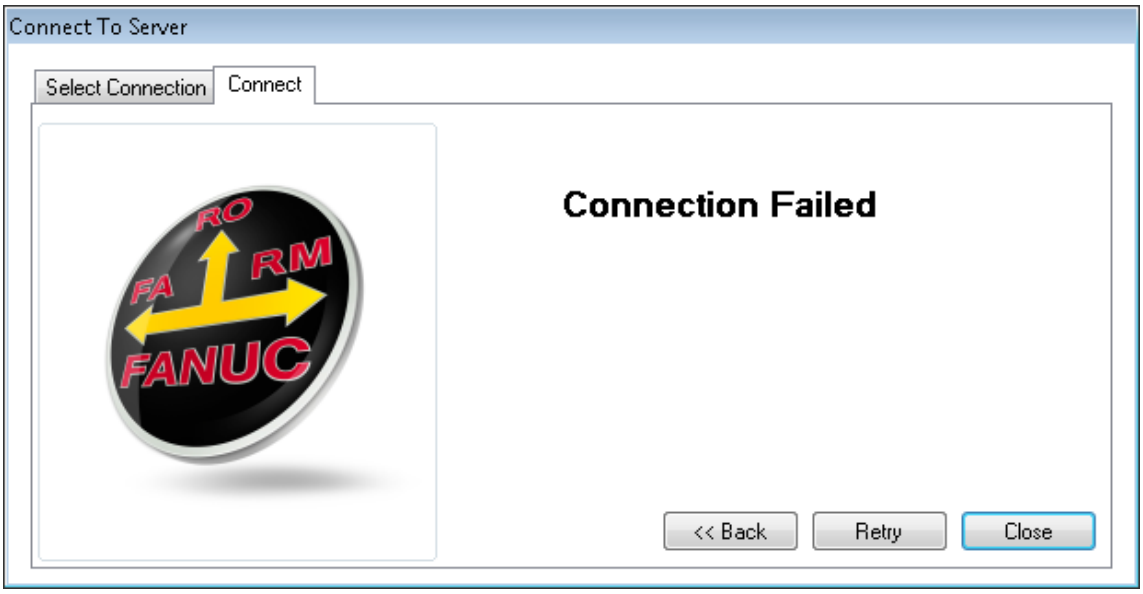
FASOPC Server

5.2 Fault Messages

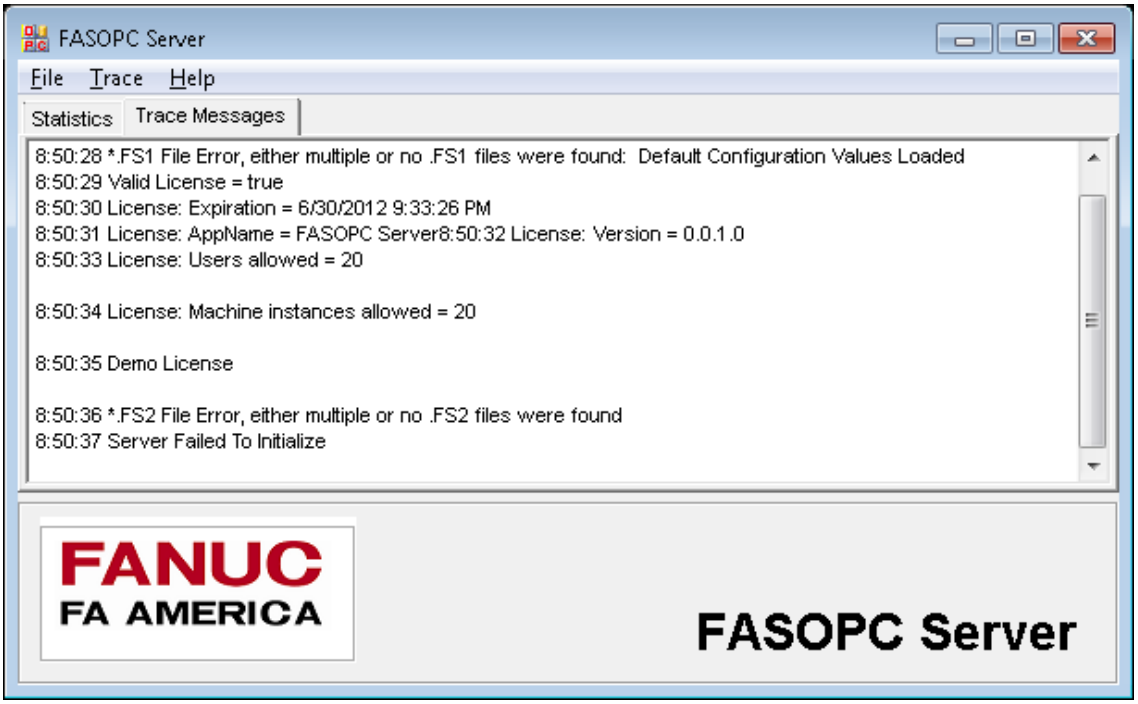
This section details the messages that may occur when operating the FASOPC software.

5.2.1 Connection Failed

When connecting to the server from the FASOPC Configurator user interface, the message CONNECTION FAILED appears.



Open the server user interface and check the trace messages generated at this time.


FASOPC Server
File Trace Help
Statistics
Trace Messages
8:50:28 *.FS1 File Error, either multiple or no .FS1 files were found: Default Configuration Values Loaded
8:50:29 Valid License = true
8:50:30 License: Expiration = 6/30/2012 9:33:26 PM
8:50:31 License: AppName = FASOPC Server8:50:32 License: Version = 0.0.1.0
8:50:33 License: Users allowed = 20
8:50:34 License: Machine instances allowed = 20
8:50:35 Demo License
8:50:36 *.FS2 File Error, either multiple or no .FS2 files were found
8:50:37 Server Failed To Initialize
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NOTES

Appendix A – Revision History

Edition	Date	Comments	Section/ Page	Related S/W
01	2013.01.22	Original release	All	1.0.0.0

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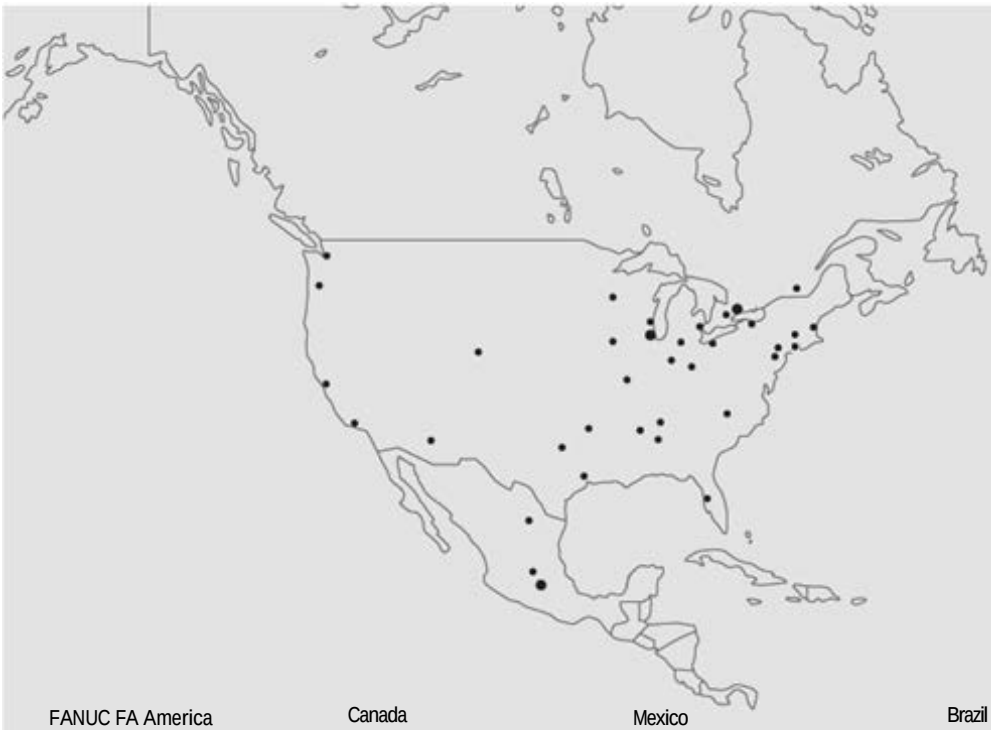

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